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Automotive Daily News

The Newspaper of The Industry

APRIL 22, 1938

Automotive Leads Again!.. Edition

THE continued progress of the automotive industry has contributed much to the expansion of Libbey·Owens·Ford Glass Company. The increased use of glass by this industry brought to the flat glass industry an ever-increasing demand for its product . . . caused the construction of more and larger plants . . . contributed more and more work to more workers . . . led to the development of Safety Glass.

In 1932 Safety Glass was regarded as a costly accessory and less than 300 workers provided the production needed to meet requirements. Today, the recognition of its merit is universal, its price has been reduced to but a fraction of its former figure by labor-saving equipment, yet the number of Libbey·Owens·Ford employees in this division alone rose last year to 2,175. And there are, too, the purveyors of power and light and fuel, the producers of raw materials, and the agencies of transportation—all with their countless thousands of employees to share a vital interest in the company's sustained success.

That Libbey·Owens·Ford looks with confidence to the future and the forward march of the automotive industry is evidenced by the additional Safety Glass plant recently completed at Ottawa, Illinois, increased facilities at Charleston, West Virginia and the new Research Plant now in process of construction at Toledo. All are progressive measures to serve a progressive industry—to serve it better.

LIBBEY·OWENS·FORD GLASS COMPANY

TOLEDO, OHIO

A Report to the Boss!

IN this special issue of Automotive Daily News, America's biggest manufacturing business reports to its boss . . . the Ultimate Consumer.

Why such a report at this time? Because it sounds a note of needed confidence and optimism. Because there is *news* from the world of motor cars that is of personal concern to every man, woman and child in America.

Why is this report made to the public? Because the automobile industry depends entirely for its progress upon *public* approval. It can go ahead only when the Ultimate Consumer nods "Yes." It slows down when the Ultimate Consumer says "No."

What has the automotive industry been doing in these recent troubled years? What is it doing now? What is it planning? What is it thinking? How does it regard the future?

Pictures and stories in these pages give the answers.

* * * *

This job of being the greatest industry in the world's greatest republic is not one to be taken lightly. No business was ever so completely *owned* by the public. None ever touched so intimately the lives and livelihood of so many people.

The automobile industry has a vast stewardship to account for. It is responsible for the welfare of 6,000,000 people on its immediate payrolls. It is indirectly responsible for the living of 18,000,000 more. They are all Ultimate Consumers.

It has in its keeping $1,800,000,000 of invested capital. But the automobile industry did not create that money. It came from Ultimate Consumers.

It is responsible, in a broad way, for the safety and happiness of the men and women who drive the 25,000,000 automobiles on our streets and highways. They are ultimate Consumers, too.

These are some of the reasons why the automotive industry considers the interests of the public its own interests . . . why it regards the Ultimate Consumer not only as "the boss," but as the partner and confidant of its plans.

* * * *

This giant industry could have remained a pygmy, had it chosen the easiest way . . . made the wrong turns, or run through the red lights . . . at any of many points along its path.

It chose the hard way . . . the American way. It made itself great by a typically American genius for never being satisfied with products that could be improved.

It has shaped style and beauty from cold steel. It has worked miracles of engineering in the cause of performance and safety. It has brought prices so low, made financing so easy, that there is one automobile for practically every home in America today.

But this is all "ancient history." What now? Well . . . the automobile business is carrying on according to its tradition.

* * * *

There has been much printed and talked about the automobile industry "leading the country out of depression." It is a compliment which motor car leaders have sincerely tried to deserve. But the automobile industry no more cures depressions than it causes them. It is the people themselves who make and unmake American prosperity. By their thinking, or lack of it. By their confidence, or lack of it. By their spending, or lack of it.

Business (which is also nothing but people) can help. But at this time in this recession, as at some point in every recession in our history, the next move is up to the real boss—the Ultimate Consumer.

When the mind that is afraid casts out its fear . . . when the closed hand that holds the nation's dollars opens . . . prosperity will return.

AUTOMOTIVE DAILY NEWS, the Newspaper of the Industry, April 23, 1938. Extra Edition, Vol. 13, No. 2504. Issued regularly Wednesday and Saturday, $6 per year, 10 cents per Copy. Entered as Second-class matter at the Post-Office, Detroit, Michigan, under Act of March 3, 1879. Copyright 1938, Published by Slocum Publishing Co., Inc., 5th Floor, New Center Bldg., Detroit, Mich. Printed in U. S. A.

FULL SPEED AHEAD!

Henry Ford's two biggest investments each year are in materials and manpower.

Out at the Rouge Plant in Dearborn and throughout the country, new buildings, new mill units and other equipment are under construction, which will call for an expenditure of $40,000,000.

The 60,000 tons of steel, the thousands of man-hours of labor and the steady flow of money to suppliers of the necessary materials, mark only the start of the great contribution these new plant units will make to the nation.

Today's construction is tomorrow's payroll. The new units at the Rouge will call for added manpower as well as increased purchase of materials and supplies.

The $40,000,000 figure for construction seems impressive. And yet Ford, on one semi-monthly settlement day, recently paid $43,000,000 to suppliers for materials and parts.

It is not unusual for Ford to pay well over $40,000,000 in wages for a three-month period. The money for supplies goes to nearly 7000 firms—and ultimately is translated largely into wages for hundreds of other industries. Wages paid at the Rouge Plant in full production go to 85,000 men—most of them the heads of families.

So the investment in new Rouge Plant equipment is a lasting benefit to the country in general. Specifically, it means finer materials, longer life, and increased quality for the Ford V-8—The Quality Car in the Low-price Field.

Ford

F O R D M O T O R C O M P A N Y

Automotive Leads Again!

WITH a half billion dollar expansion and re-equipment program completed within the past five years, the automotive industry today is poised, ready to move forward to even greater heights at the first sign of a quickening market. From the standpoint of facilities the industry now is in a better position than it was in 1932, when for the third time in its relatively brief history it was credited by the nation generally with having led the country out of a depression.

Today it is an industry reborn with new equipment, new plants, new ideas, and, perhaps, a few new ideals. This gigantic program of modernization, of which approximately $100,000,000 in projects is still to be completed expresses in eloquent actions the faith this industry has in America and the American people. It also bears witness to its willingness to accept the responsibilities which leadership imposes.

That leadership has come by virtue of the fact that the automotive industry in 1937 was the largest single industrial purchaser in the world. Its purchases of raw materials and finished parts alone that year ran close to $1,500,000,000. It provided employment directly, and indirectly, for approximately 6,000,000 workers. In other words, one out of every six gainfully employed. Counting the dependents of these workers it provided opportunity for livelihood to 18,000,000 persons. It produced 5,016,565 cars and trucks valued at $2,574,421,895 which is 10 percent below the 1929 peak. Direct employment in automobile parts and body plants last year, however, was 16 percent above the 1929 peak with 517,000 workers averaging $32.05 per week, or approximately $850,000,000 annual payroll for the industry as a whole.

Manufacturing branches of the industry represent a capital investment of approximately $1,800,000,000. Its shares are owned by hundreds of thousands scattered in all parts of the country. In the direct sale of automobiles and trucks there are approximately 46,000 dealers who are independent businessmen backed by their own capital. In addition to these, the parts, accessories and service establishments bring the total sales outlets to 465,000. All told 1,381 manufacturing companies are classified as automotive.

As an important contributor to the federal government the industry in 1937 paid $373,219,993 in excise and similar taxes. In federal gasoline tax its customers contributed $203,025,379, which does not include $12,304,203 oil pipeline tax and $967,375 tax on processing crude oil. Nor does this bill include income taxes, social security tax, surtaxes, capital gains, levies etc.

To permit an industry of this maginitude to operate for long on reduced schedules is shear national wastefulness. How can we get it going?

The editors of Automotive Daily News sincerely hope that the stories told on these pages will serve as a convincing rebuttal to the stage whisper rumors, too readily accepted, that "industry is lying down on the job" that "capital is on a strike"; whispers that have done much to undermine national and individual confidence; to inspire individual hoarding; to slow sales; to delay production.

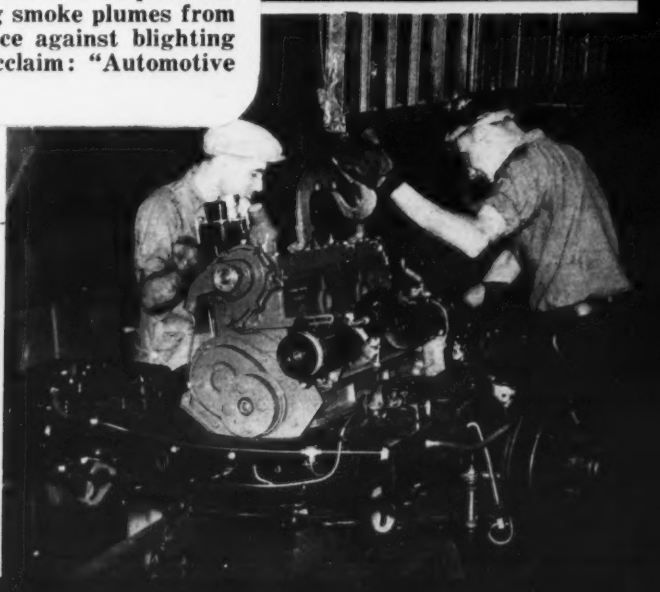
Second, ADN editors feel, that capital and management should be given assurance that profits, honestly earned, in the future can be freely re-invested without penalty; that services established to stimulate growth and provide protection for customers can be continued unmolested.

Third; a modification of recent labor legislation which stripped management of its prerogatives and placed them in the hands of irresponsible outsiders whose purposes are more selfish than subtle.

That the automotive market can be, and will be, expanded is revealed in the fact that total registrations in this country increased from 24,000,000 in 1929, the peak year, to 29,000,000 in 1937. In 1928 it was said the saturation point had been reached. Of the 25,000,000 passenger cars included in this total, close to 10,000,000 are more than seven years old and demand replacement.

In 1937, in spite of the fact that production reached 5,016,000, it still failed to surpass the previous record of 1929 when 5,621,000 units were built. This is contrary to recovery trends and indicates that the market was slowed before it had reached its peak. In addition to this the American people last year paid $5,910,000,000 for automotive products which was 15 percent of the national income and second only in dollar volume to expenditures for food. These signs create new horizons for automotive leaders by pointing a future market and revealing a desire on the part of people to buy.

Thus our need today in simple language is confidence, common sense and cooperation. Supported by these, automotive can once more head the parade and rising smoke plumes from the chimneys of industry, like orchard smudge pots, will give assurance against blighting frosts of false fears for the future. Once more the nation then can acclaim: "Automotive Leads Again!"



1938

XUM

Ford Builds Today . . . for Tomorrow

$40,000,000 Program Points to Confidence in Future

Reaching back into the tranquil countryside Ford brings work to workers rather than workers to work. Above is the hydro-electric plant at the Dundee, Mich., operation. The Dundee plant provides work for neighborhood employes making welding points and fixtures. Part of the present decentralization program.

ABOUT three and one half decades ago Henry Ford, 40, a family man with responsibilities quit the security of a steady job at $120 a month to enter into the dubious business of building automobiles. Every day since then Henry Ford has continued to quit the security of "good enough" to strike out into new fields searching for something better. Today, well past his three score years and 10, Henry Ford has lost none of the courage and confidence that prompted him to make his first step away from "security" more than 30 years ago. Through his relentless prying into the future he perhaps has contributed more to the America we know today than any living individual.

Since the Ford Motor Company was organized, Henry Ford has built and the peoples of the world have purchased approximately $14,000,000,000 worth of his products. Of this sum he has returned to the purchasers in the form of wages and materials costs approximately $12,484,000,000. He has contributed to the support of government some $616,000,000 in taxes.

The remaining 6.4 per cent of gross sales or approximately $896,000,000, represents profits and money reinvested in plants and property. By far the greater part of this sum has been used for the latter purpose.

Ford Motor Company has survived at least six depressions and one world war. From each of these it has emerged strong and virile and pressing ever forward. Today this slight, wiry but imperturbable industrial giant who heads the company is running true to form. In October, 1937, Ford Motor Company announced a new Rouge Plant expansion program to cost more than $40,000,000 and rival its 1934-1935 program which amounted to approximately the same sum. This is a continuous program with $5,782,220 of construction in progress at the present moment. Another $13,720,624 in orders for new projects is now in process.

This consistent policy of building always for a better future—adopting always any improvement in methods, materials and machines has been followed religiously since the birth of the Ford Motor Company. During the past eight years (seven of which were depression years) the company has scrapped $175,000,000 (one hundred and seventy-five million) dollars worth of equipment which it replaced with $217,000,000 worth of new equipment. This was an average expenditure of 2¼ millions of dollars monthly. This equipment was not scrapped because it no longer could be used but rather because, in the eyes of the Ford Motor Company, any item of its equipment is considered obsolete the moment something better appears to replace it.

For that reason the new Rouge Plant $40,000,000 improvement program comes within less than two years of the completion of the 1934-1935 program. And that expansion was reputedly the largest ever undertaken by private industry during a period when the country began to "emerge from the depression." Ford expansions are not confined to buildings and building equipment but reach out in industries so remote from the production of automobiles as to be almost unbelievable. The list includes such items as new railway locomotives, new steamships and other unusual equipment.

The 1934-1935 program embraced the construction of the hot strip and cold finishing steel mills, the expansion of the main power house, enlargement of the giant 30-acre foundry for the manufacture of cast steel alloy parts, the installation of complete new glass-making equipment in the glass plant and installation throughout the plant of additional new tools and equipment to enable production of 6,000 V-8's in 16 instead of in 24 hours as before.

The new Ford expansion program as announced, calls for the following:

New battery of 61 coke ovens recently constructed, plus additional ore storage and handling equipment.

Rearranging floor space of the Ford foundry, the largest in the world, to make more steel castings. Space is provided for casting alloy steel parts, the use of which in motor cars was pioneered by Ford four years ago with the introduction of the cast steel alloy crankshaft for the V-8 engine. Numerous other parts formerly forged are now cast of special steel alloy developed by Ford. In connection with this development, the present electric furnace building will be so converted as to aid in the making of steel castings.

Reconstruction of the present hearth steel furnace facilities and reorganization of the

(Continued on page 34)

Giant sprawling Rouge plant, one of the industrial prides of the nation, and a lion's share of the so-called Ford fortune, is shown below. In this view can be seen the storage basin, powerhouse, blast furnaces and other buildings. Picture was taken from atop the 10,000,000 cubic-foot gas-holder. A smaller gas-holder, 2,500,000 cubic feet, was completed a few months ago. This plant now has become the heart of the Ford Company whose products flow to all parts of the world.

CHRYSLER REVISES AUTO TRADE ETHICS
New Agreement With Dealers
New Chrysler Agreement To Benefit Distributors
Special to the Herald Tribune
DETROIT Feb. 16. — Chrysler Corp. today announced terms of a new agreement with distributors. K. T. Keller, president of the organization, made the announcement, and B. E. Hutchinson, chairman of the finance committee, presided. More
Chrysler Distributes Liberalized Contract To American Dealers
Chrysler New Deal
Liberal new contract guarantees dealer more protection than he has ever had.
CHRYSLER CORP. car divisions are offering all distributors and direct dealers
Chrysler Dealer Policy Is Revised
Terms Simplified in New Agreement

Leading Publications Comment on New Chrysler Corporation Dealer Contract

THE recent announcement of the new Chrysler Corporation Dealer Agreement is not only being received enthusiastically by Chrysler Corporation distributors and dealers throughout the country, but is being hailed by leading newspapers and automotive trade journals as a notable forward step in protecting dealer and distributor relationships.

Commenting on the significance of the new agreement, an article in the February issue of Motor states, "Longest single stride ever taken in the direction of bankable contracts for automobile dealers was recorded when the Chrysler Corporation completely re-wrote the 1938 sales agreements of all its divisions and made them uniform . . . Never before has any great producer reached out a powerful arm to protect sales representatives with whom it has no direct relations."

From an editorial in the February 19th issue of the Automotive Daily News—"It is not so much that the new contract changes in any material way the relationship which has existed between Chrysler Corporation dealers and the corporation; it is rather that it puts into a written agreement policies which have been lived up to by the corporation for years . . . The new Chrysler sales agreement . . . should form the groundwork for an entirely new era of business relations, which leaves no grounds for misunderstanding on either side."

Automobile Topics points out, in the February 21st issue, that the new Chrysler contract not only provides equal terms and treatment for dealers and distributors, but also "is one of the most far reaching merchandising moves the automobile industry has seen in a long time. What makes it so is the fact that it defines clearly the functions of manufacturer and dealer and provides solutions for a number of the ills for which the industry has been most severely criticized . . . is unique in that . . . it is written in plain language . . . in the form of a readily readable booklet."

This new Dealer contract is evidence of Chrysler Corporation's desire and policy to promote a helpful and friendly business association with its dealer and distributor organization.

PLYMOUTH
PASSENGER AND COMMERCIAL CARS
DODGE
PASSENGER CARS AND TRUCKS
DE SOTO
CHRYSLER

Chrysler Corporation

Chrysler Marine and Industrial Engines • Airtemp—Air Conditioning

YOU GET THE GOOD THINGS FIRST FROM CHRYSLER CORPORATION

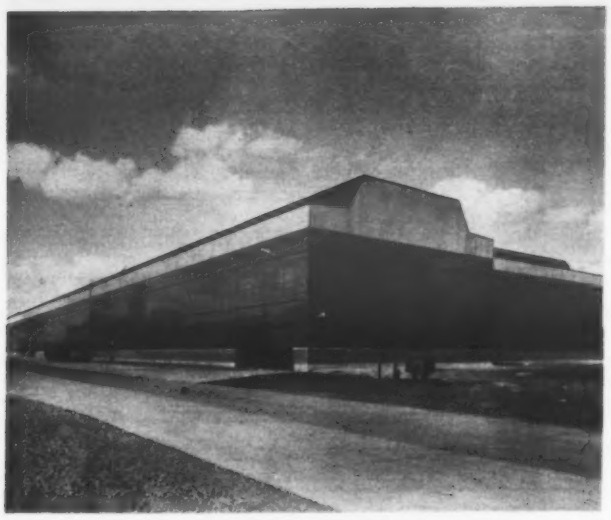


Photo courtesy Albert Kahn, Inc., Detroit

DeSoto press shop completed in 1936 won Architectural Forum's award for best use of glass.

Chrysler Backs Confidence With Cold Cash

Photo courtesy Albert Kahn, Inc., Detroit

New one-half ton truck plant at Detroit is still in the process of construction.

"The wholesome growth of this organization is one of the achievements of this generation."

THUS Walter P. Chrysler, summarizes the history of the corporation which bears his name. To those of us who look about and say: "The world is complete, we now need only a better method to share more equitably what we have," let us remember that a generation ago there was no Chrysler Corporation. In the brief span of time since 1925 Chrysler Corporation has built and sold 6,190,222 cars and trucks of a total wholesale value close to $4,500,000,000. Its payrolls to employees during those years total close to $750,000,000. Its purchases from suppliers, and of raw materials, created better than a $2,763,000,000 market for the products of mines, fields, machines and men. Its expenditures for plants, property and equipment have run to more than $152,000,000. And it has paid into the coffers of local, state and federal governments approximately $150,000,000.

The number of persons employed in Chrysler dealer establishments in the United States, it is estimated, increased from 34,000 in 1926 to 208,560 in 1936. It is estimated that the net worth of these dealerships today is approximately $147,676,000 as compared with $37,000,000 ten years ago.

And these figures do not take into consideration the real, if intangible contribution, to our nation's welfare which the products created by the corporation have made in the hands of owners from one end of the country to the other. They do reveal the backbone and spirit of an organization which aspires to ever greater things in the future.

When Automotive Daily News came into being in 1925, only one out of each 11 cars sold was a Chrysler product. Today Chrysler is proud that every fourth car sold is a Chrysler, a Dodge, a DeSoto or a Plymouth. It is scarcely necessary to recall also that at the beginning of the 1929 to 1932 depression, Chrysler Corporation had barely shifted, in a business way, from knee pants to longies. Plymouth which was destined to take its place as one of the three big volume cars, was merely pencil-marking on a drawing board until 1928. In 1929 it accounted for only 2 per cent of the big three volume. It forged ahead through the depression years until in 1933 it accounted for 22.8 per cent of the total shared by the big three.

While the rise of other Chrysler units during those trying years was not so spectacular as that of Plymouth, the tenacity with which they held to their positions reflects the inspiration of the leader who in January, 1938, again declares that the vitality and courage of the men who have contributed to the growth of Chrysler Corporation "know no obstacles too difficult to overcome." This type of leadership in the automobile industry may be attributed to some extent to the fact that motor executives do not live in the present, but 90 days in the future. This type of leadership does not wait for the "breaks" to come, but rather during periods of slackness examines into its own business to seek opportunities for the future.

Chrysler and its units emerged from the depression in 1933 with eyes fixed on the future and a definite program outlined. In that year it increased its production to 450,922 units with a wholesale value of $238,675,952. It added $10,815,278 worth of new properties, plants and equipment to prepare for a bigger year in 1934. In 1934 the corporation raised its production to 597,756 units valued at $362,253,626 and added another $12,106,506 worth of property, plants and equipment. In 1935 the output totaled 843,599 units valued at $516,830,333 and its plants and equipment were expanded to the tune of $11,878,611.

The first million car year for the corporation came in 1936 scarcely more than a decade after the first Chrysler car was introduced. In that year production totaled 1,066,229 valued at $667,138,371. Capital expenditures for property, plants and equipment rose to $21,650,504. Last year the corporation again experienced a better than a million car year with a total of 1,158,518 valued at $769,807,839. Capital expenditures once more ran to $21,915,352 and much of expansion work is still in the process of construction. *(Continued on Page 37)*

Chrysler's Recovery Record

Year	Wholesale Value of Sales	Number of Units Sold	Gross Additions to Property, Plants and Equipment
1933	$238,675.952	450,922	$10,815,278
1934	$362,254,626	597,756	$12.106,506
1935	$516,830,333	843,599	$11,878,611
1936	$667,138,371	1,066,229	$21,650,504
1937	$769,807,839	1,158,518	$21,915,352

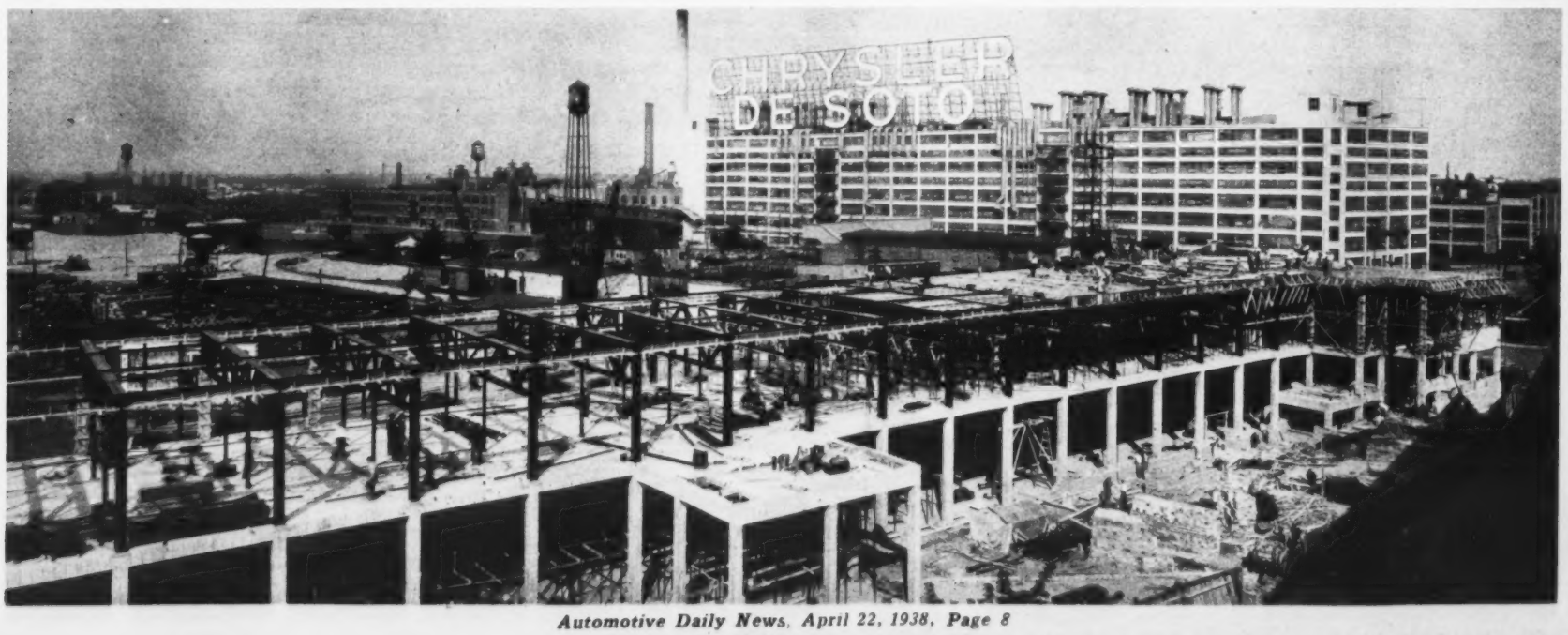
Average yearly employment 1933-1937..... 58,360

Average yearly payment to employees 1933-yearly .....$ 94,385,829

Average yearly taxes 1933-1937.....$ 24,644,398

Average yearly purchases of materials, machinery, supplies and real estate 1933-1937 .....$342,261,738

Before the forces of recovery had begun to assert themselves in 1933 Chrysler's expansion program was under way. The general view below shows progress made on the new office building (foreground) by October 6, 1933. Expansion that year totaled $10,815,278.



VALUE
33
34
35
ONE YARD
UNISTEEL BODY
– fused solidly together, top, bottom and sides
– providing safety with style which glorifies steel construction
TURRET TOP
– puts the safety of solid steel over your head in every closed car of the General Motors family
KNEE-ACTION
– the true gliding ride – makes every mile you travel more comfortable and assures better control of steering in emergency
NO DRAFT VENTILATION
– keeps the air you breathe healthfully free from drafts and makes driving safer by keeping the inside of the windshield and windows fog-free
HYDRAULIC BRAKES
– improved in design to match the flashing performance of the new cars with the safety of smooth and powerfully sure straight-line stops
STREAMLINE STYLING
– matched to the popular taste, and approved by millions of car-owners as the expression of modern beauty of design
GM
GENERAL MOTORS

This Old-Fashioned Idea of VALUE Still Lives

WE all remember the grateful merchant who gave a little extra length with each piece of goods he sold.

General Motors still follows the old-fashioned idea that it pays to give value in good measure.

You find evidence of this in unending research in General Motors laboratories—in constant testing of dependability on the Proving Grounds—in honest devotion to high standards of craftsmanship along assembly lines.

And you find evidence of it in specific features, not only numerous, but of unquestioned utility.

The reputation General Motors cars enjoy for service, for safety, for comfort, for performance is in itself strong reason for looking first at these cars when you are about to buy.

But consider also the specific features of these cars, and we believe your choice will be a General Motors product on the ground of its extra value.

GENERAL MOTORS

CHEVROLET · PONTIAC · OLDSMOBILE · BUICK · LA SALLE · CADILLAC

We Are Hewing To Our Line...

THIS COMPANY was founded by a man who believed in individual effort and initiative...

The spirit of his philosophy and the strength of his optimism have guided this company through twenty years of turbulent times . . . and established it as one of the financially-strongest and best-known companies in America's leading industry.

Two years ago, definite plans were set on foot to enhance still further Nash's position in this industry. *Plans that called for, not one, but many years of aggressive expansion.*

Already, many things have been accomplished. The rise of Nash the past two years, in sales and prestige, is recognized by everyone.

Today, in this period of general doubt and hesitation, we want to make this statement known: *There has been no fundamental change in our plans. There will be none. We are out to become even a greater company than we are now.*

. . . The millions of dollars spent in 1937 for plant expansion will be followed by still further expenditures.

. . . The engineering leadership which produced this year's sensational Controlled Air system, the new "Super-Thrift" Engine, the new Nash-Kelvinator sound-proofing . . . will be followed by continued outstanding developments now in progress.

The aggressive Nash advertising campaign and the successful dealer help program are a promise of still more to come.

We are thinking and planning for tomorrow as well as today.

We believe in the fundamental soundness of this country. We believe in the automobile business. But we believe—above all else—*this business is what WE CAN MAKE IT.* We are hewing to our line. Nash Motors Division of the Nash-Kelvinator Corporation, Detroit, Mich.

NASH MOTORS DIVISION *Nash-Kelvinator Corp., Detroit, Michigan*

GM Plows Back $225,000,000 In Tomorrow's America

CONFIDENCE in tomorrow may best be judged by what we do today. Men who have little confidence do little and men who have great confidence do great things. By this measure, perhaps, we can best judge that the leaders of General Motors still are confident that the march of American industrial progress will be steadily forward, for during the past five years this corporation alone has expended more than $225,000,000 in new plants, new equipment and improved processes of manufacturing, all based on expectations of future requirements. Six new plants have just been completed or are nearing completion.

Coming a little closer to the present day, it is interesting to note that $61,725,000 was appropriated for expansion during 1937 alone. Of this sum $44,150,000 was expended last year and the remainder has been carried over into 1938. These expenditures represent the largest outlay by any single corporation in the automotive industry and give some idea of the urgent need for the country as a whole to support a program to start the automobile industry back into action.

Last year the corporation produced and sold to its distributing agencies throughout the world, merchandise valued at $1,606,789,841. This was a gain of 11.6 per cent over the $1,439,289,940 produced in 1936 and was the largest volume year in the corporation's history. To manufacture these products employment was provided directly to 261,977 workers on the average throughout the year. These workers shared in a total payroll of $460,451,744. The employment provided indirectly to workers in supply companies, shipping lanes, transfer points, in the eventual sales and service of products in owners' hands is difficult to estimate. In 1936 General Motors employed 230,572 workers who divided a payroll of $384,153,022. Simple deductions reveal that even had the corporation not increased the number of its workers in 1937, the payroll would have jumped by $30,000,000 as the result of increases in hourly rates alone.

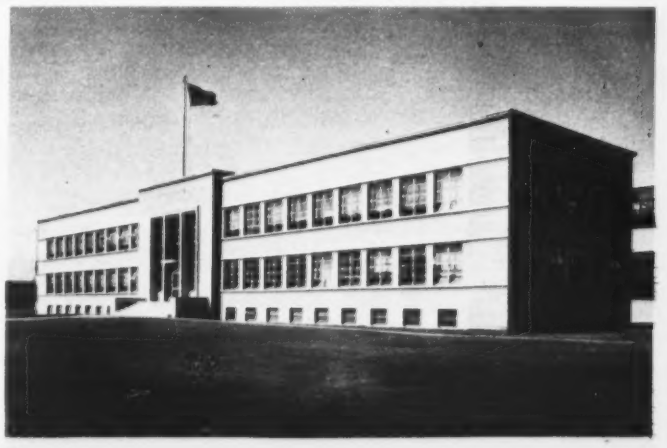
In addition to its wage payments during 1937 General Motors in 1937 paid to its 358,000 stockholders in the form of dividends $169,728,081. In plants expansions it expended $44,150,000. In wage payments its outlay was $460,451,774, and its tax bill hit $104,959,000. Thus out of its total sales of $1,606,789,841 the corporation paid directly to the public, in form of wages, dividends, construction and taxes, $779,288,855. This represents almost half the total and of the remainder it is evident that the greater portion was spent for materials, supplies, parts and so forth, which went into its own finished products since the corporation retained in the business only $28,708,517.

In our estimation a corporation producing such vast quantities of products, employing hundreds of thousands directly and untold thousands indirectly, a corporation producing such vast wealth annually owed much to the community since its continued operation is vitally important to the nation as a whole. Thus its leaders would be derelict in their duty if they did not withhold ample reserves to insure the greatest possible production when difficult periods arise. It is difficult to believe that adding $28,708,517 to reserves out of a total sales of $1,606,789,841 or equivalent to $0.63 per share of stock is an unreasonable hoarding against a rainy day. Yet in this case the retention of these earnings required an additional tax of $5,736,906 which in effect is a penalty against sound business judgment.

This retention from earnings would seem particularly advisable on the part of an expanding corporation. As mentioned previously, since 1933 General Motors has invested more than $225,000,000 in new plants and equipment. Today the corporation holds real estate and plants valued at $747,817,794. These plants are situated at strategic points throughout the United States and the world. They produce a diversity of products which give the corporation and its employes considerable protection against the seasonal vagaries to be expected in any single line of endeavor.

In comparison to the number of plants owned by the corporation relatively few of them are situated in the immediate Detroit area, but rather are scattered from coast to coast and from the Canadian border to the Gulf of Mexico. This decentralization program which became a fixed policy of the corporation some years back is summarized in the annual report as follows: "The soundest policy, both economically and socially, is to distribute the productivity of industry among as many different communities as is prac-

(Continued on page 38)



A neighbor and customer in every community—and communities from coast to coast, is General Motors' boast. Pictured at the left is the administration building of the Southern California division of GM at Los Angeles on the Pacific. At the right is the administration building at the assembly plant at Linden, N. J., on the Atlantic. In between are hundreds of GM communities. Both plants and building shown on this page were designed by Albert Kahn, Detroit, through whose courtesy these pictures are reproduced.

Hudson Puts Men and Money to Work

"I DO NOT need to tell you that after a period of renewed activity the wheels of industry have again slowed down. The curtailment has been sharp and rapid, especially during the last few months.

"While there are confident and inspiring moves of a general nature that can and should be made, there is one specific job for industry—THAT IS TO PUT MORE MEN AND MONEY TO WORK WHEREVER POSSIBLE."

The speaker, A. E. Barit, president of the Hudson Motor Car Co. The time: early January, 1938. The occasion: a gathering of editors and publishers representing practically every newspaper of any importance in the entire country.

Then Barit went on to announce the latest move of his company—the introduction of a new car at the very bottom of what we are pleased to call the "recession"—putting thousands of men and millions of dollars to work.

The gentlemen of the press were quick to recognize the timeliness and significance of this move—the courage it represented. Headlines blossomed on front pages from coast to coast—probably the widest recognition ever given to any business news of this kind.

But what none of the listeners at that time realized—what Barit perhaps realized only subconsciously himself—was that in making such a courageous and far-seeing move at such a time—giving evidence of willingness and ability to take the lead in putting men and money at work—Hudson was only doing again what Hudson had done again and again before.

Since the Hudson Motor Car Co. was organized, back in 1909, the curve of business activity has several times swung sharply down, then up again—usually to new highs. But each downturn, as the history of the automobile industry will show, has found Hudson ready, willing and able to DO something about it.

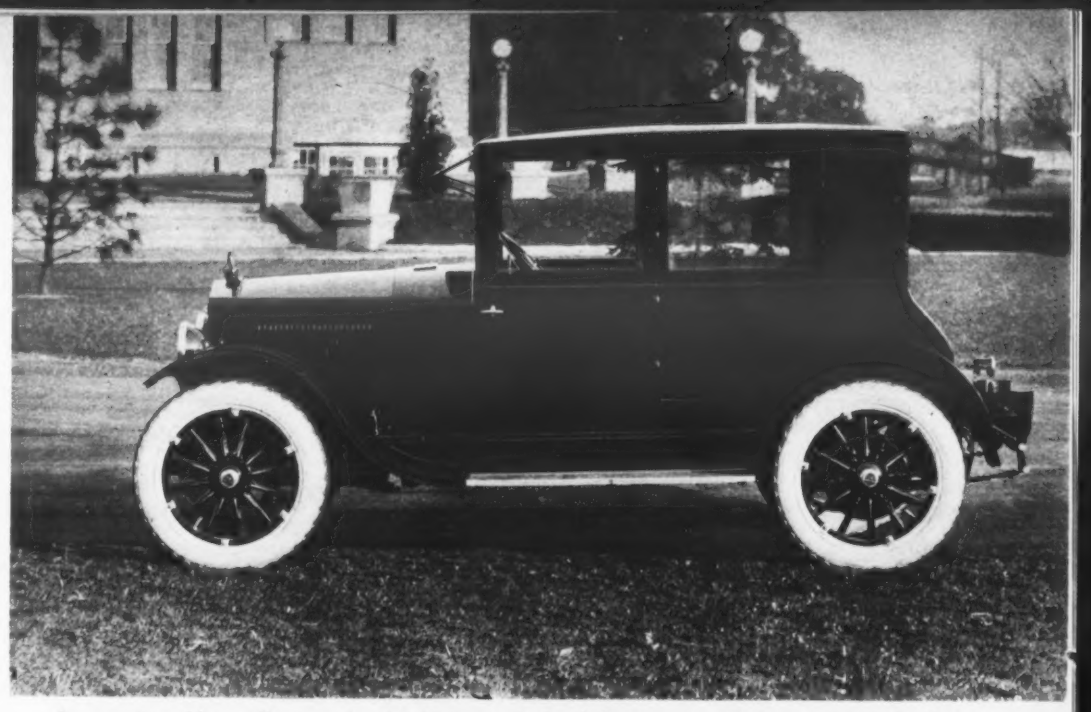
First of these periods of doubt and uncertainty came during the months preceding the World War. Then it was that the four year old Hudson organization, already responsible for a number of important advancements, started the six-cylinder car on its way to popularity and volume sales by bringing out the first "Light Six." Forerunner of the famous "Super Six," which revolutionized fundamental ideas of motor design and efficiency, this new car launched the trend to multiple cylinder cars at popular prices. It was a significant advancement, made at a time when courage and initiative were urgently needed.

Then, several years later, came the post-war period, when business again found hard pulling and the great majority of companies in all industries shifted into low gear. But Hudson, by now a great and successful organization, accepted these conditions as a challenge and launched one of the greatest developments in all automobile history—one that not only lifted Hudson to new heights, but that tremendously increased the desirability of the automobile to the masses and broadened the market for all cars.

For it was at this time that Hudson introduced the first closed car at an open car price!

There were closed cars in those days, to be sure, but only for the well-to-do. Coupes or limousines—built to order. A bare 2 per cent of the total automobile production. Prices were prohibitively high. Every manufacturer knew that millions wanted closed car comfort—but none had solved the problem of manufacturing costs.

Closed cars at open car prices. It brought all-weather, all-season comfort for the first time into the low price field. It opened



An epoch-making milestone in the history of the industry was Hudson company's first coach introduced in 1921, the first closed car selling at the same price as an open car. Prior to this closed cars cost the consumer several hundred dollars more. This tapped a market which apparently had been waiting for lower prices on closed cars. This has been proven by the fact that nowadays open cars are built only on special order.

the way for a type of car that accounts for more than 95 per cent of all automobiles sold today—regardless of price or class. This great Hudson "first" by making possible the production of closed cars in quantity at lower prices, has saved the motoring public literally billions of dollars. Again Hudson initiative helped to put men and money to work.

The "Great Depression" brought the next call for action. Right at the very depths of the down-swing, still another basic contribution to automobile design, still another new idea in the construction of automobiles was launched by Hudson.

It was in 1932 the country began to buzz with talk of new cars that were rolling from the Hudson factories in Detroit. Cars that were truly revolutionary in design and construction—a wholly new kind of automobile. Hudson engineers long had believed that an automobile body and an automobile chassis should be one unit—not two. Then why not, they argued, build them that way?

Why keep on attaching bodies to chassis with heavy, cumbersome brackets and braces? Why handicap a car with hundreds of pounds of useless dead weight? Why use any structural wood at all, since steel gives infinitely greater strength, with less weight?

From that reasoning came a new type of automobile design—cars stronger than ever before, yet several hundred pounds lighter, with all the advantages in superior performance and greater economy which naturally resulted.

The early days of this present year presented still another opportunity for Hudson to do what it had done so many times before—to strike out boldly—to do what one company could in aiding to put men and money at work.

This time it was the announcement of a new car in the lowest price field. A car which, while measuring up to every standard of lowest priced cars in economy of ownership, and operation, is unusual in the amount of room it makes available, in the smoothness of its operation, the sturdiness of its construction, the new Hudson 112.

So, through three decades of business history, Hudson has always been ready to meet the challenge of business conditions with *action*. It is an inspiring record, yet one which any well established organization in any industry has the opportunity to match. For, again to quote Hudson's president: "In any business, large or small, there must exist experience, specialized abilities, and resourcefulness which, if put into action, will start wheels turning again and put men and money to work."

NATION'S PRESS INDUSTRY'S ALLY

WHEN the newspapers of the country rallied to the support of the automobile industry to break the so-called used car log jam a few months ago, they were adding just one more chapter to a relationship that began with the birth of the automobile.

Newspaper friendship for the automobile business started back in the "good old days" when narrow-minded legislators tried to keep the new-fangled horseless carriage off the streets, and urchins along the curb gibed and heckled the veiled and begoggled occupants with cries of "Git a horse!"

When you see a picture of some veteran automobile executive with his arm about the shoulders of one of the old-time automobile editors of a metropolitan daily, you can be sure there is a volume of meaning in the embrace. Here is a meeting of men who, working together, have held the interest of millions of Americans in the automobile and its development.

It is very largely the glamor built around the industry and its products that has made people buy cars in such tremendous quantities—and thus made it possible to bring them within the reach of workers in every station of life. Only the newspapers could have created and sustained this glamor and interest.

The automobile industry fully realizes how fortunate it has been to have this support. Its progress has been recognized and treated as news. Feats of

Thanks to the Press! Millions of dollars' worth of newspaper advertising space was donated by the publishers of America to help break the used car jam of 1938. Much of this campaign appeared prior to the organized effort sponsored and paid for by the automobile manufacturers in the National Used-Car Exchange Week.

speed and endurance, manufacturing methods, financing and distribution, have been reported so thoroughly and sympathetically that there is little wonder the public has responded—little wonder that THE CAR is today the most universal topic of conversation except the weather.

In boom times and in times of stress, the newspapers have always stood solidly behind the industry. Living close to it, on the "firing line" of retail distribution, they have been more sensitive to its trends than any other observers. And their first question has always been: "What can we do to help?"

It was the newspapers who credited the automobile industry with "leading us out of the depression." Yet it was the newspapers who, by their sympathetic and generous treatment of motor car news, made such leadership possible.

We do not have to go back very far to find a practical demonstration of press support on a large scale. Early last winter, long before the industry itself fully realized the seriousness of the used car situation, the newspapers sensed it and saw the need of concentrating on it. And instead of sitting idly by, they ACTED.

Their representatives were in constant contact with dealers handling every make of car, in every type of operation. They had a broader picture of used car conditions than any single manufacturer could possibly have. They saw that something had to be done.

As though by common agreement in late December and early January, metropolitan dailies in every section of the country launched vigorous campaigns to stir public interest in used cars. They ran large-space advertisements in their own pages at their own expense. They gave front page position to news stories. They printed columns of editorial comment.

In the first eight weeks of 1938, it is safe to say, the newspapers of the country gave more than a million dollars' worth of their space, urging the public to "buy a better used car now," and calling public attention to the remarkable values offered in used cars.

That was the real beginning of the crusade that had the whole country thinking and talking about used cars. All this advertising appeared before the industry itself launched National Used Car Exchange Week, which climaxed the campaign in March.

Again the newspapers joined hands with the manufacturers, the radio networks and other publicity channels, in generous support of that program. For what it accomplished, a lion's share of credit must go to the press.

This is not an unusual example—it is typical. It well illustrates the influence newspapers have had on the deveopmenlt of the automotive business. It is the continuing of an old friendship.

Automotive Daily News knows it is only echoing the sentiment of automotive leaders when it says: "Thank you, American press, for many past and present favors!"

NOW COMES THE NEW HUDSON 112 *DeLuxe*

(Left) Hudson 112 DeLuxe Convertible Coupe, $840; (right) Hudson 112 DeLuxe Sedan, $765—fully equipped, ready to drive in Detroit, including Federal taxes; state and local taxes, if any, extra.

And here is what you'll see . . .

A beautiful new interior! New upholstery of true DeLuxe quality . . . rich boucle in a diamond-checked pattern with braided seams . . . restful, inviting, smartly tailored. New instrument panel in a lustrous finish of natural wood-grain set off by a wide strip of stainless steel . . . the whole blending with the attractive new color treatment of steering wheel and window mouldings.

Roominess that matches style! More room, in these deeply cushioned seats, than you'll find in any other lowest priced car. Baggage rides in a 12-cubic-foot enclosed trunk compartment in the rear. And there's a big package locker in the dash, for parcels or odds-and-ends.

New riding comfort! In a car that's smooth and steady because of long, flexible leaf springs of special design, combined with high-efficiency, direct-action shock absorbers. And new handling ease . . . because of roller tooth steering, a fine car feature, and correct weight distribution.

New safety! Body *all* of steel. *Clear* driving vision through the widest windshield in the entire lowest price field. Safest stopping, too, with Hudson's Exclusive Safety Brakes . . . finest Bendix Hydraulics, with a reserve mechanical system that takes hold automatically from the same foot pedal if ever needed. Hood hinged at the *front* . . . wind only closes it tighter.

And . . . you'll see new economy! The economy that comes from long life and low upkeep cost . . . and gas economy, too, in the car that beat the other three leading lowest priced cars in direct competitive tests.

You'll see a car that's completely equipped! Spare wheel and tire, of course . . . lying flat in the trunk compartment. Four direct-action shock absorbers. Sturdy bumpers. Radiator ornament. Gas and water temperature gauges on the dash . . . with Hudson's famous Tele-Flash signals to tell you all's O. K. with oil and generator. Big 17-plate battery . . . mounted under the hood for easy servicing. Foot-controlled light switch. Windshield wiper and sun visor. New ash receiver built into the dash.

Drive the new Hudson 112 DeLuxe! Thrill to the LIFE and GO of this 83 h.p. motor, with all Hudson's patented features . . . *smooth* at every speed.

We present this new Hudson *with wide open doors* because we're proud to show it to the world, *inside* and *out*.

With its companion cars . . . Hudson Terraplane, Hudson Six and Hudson Eight . . . the new Hudson 112 DeLuxe completes a line of cars which we firmly believe offers *top value* in every popular price field.

Write for complete information about the Hudson franchise . . . the first franchise in the industry to give dealers this *complete* coverage with a single line of cars.

112-in. W. B. . . 6 Cylinders . . 83 H.P.

$704

for Hudson 112 DeLuxe, 3-Passenger Coupe. Safety Plate glass standard throughout. All models available in a wide variety of beautiful new spring colors.

HUDSON ALSO BUILDS TOP VALUE IN EVERY POPULAR PRICE CLASS

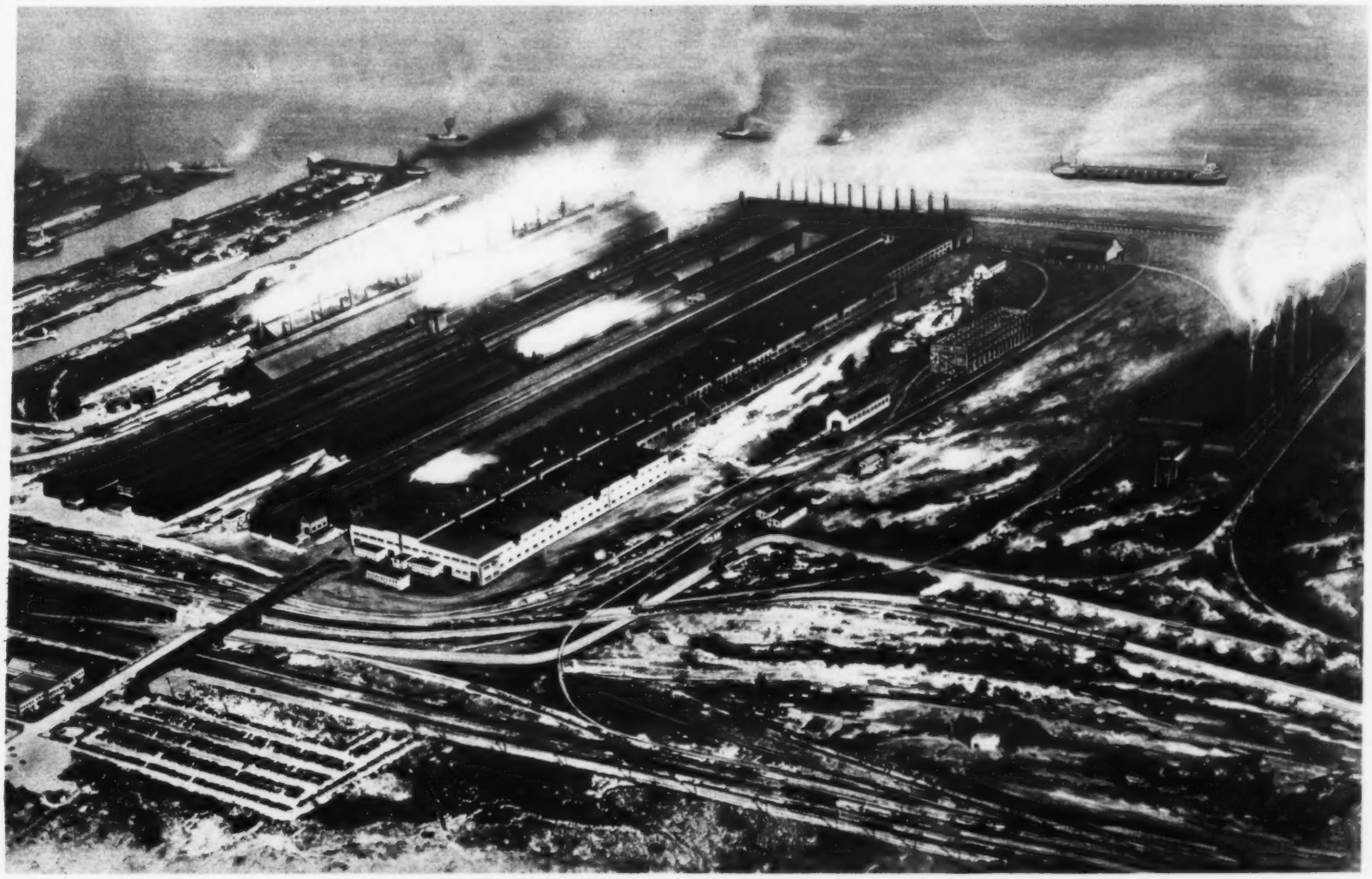
HUDSON Terraplane $789 and up
HUDSON Six . . $934 and up
HUDSON Eight . . $1015 and up

Prices quoted are for 3-passenger coupes; fully equipped, ready to drive in Detroit, including Federal taxes; state and local taxes, if any, extra. Attractively low time payment terms, with new Hudson-C. I. T. plan.

HUDSON MOTOR CAR COMPANY

DETROIT, MICHIGAN

Meeting Every Demand



Erection, production and major policies governing the operation of these mills at Ecorse, Michigan, have been referred to as "an epic of American industry."

HOT ROLLED STRIP (1 INCH TO 34 INCHES WIDE)

HOT ROLLED STRIP SHEETS UP TO 92 INCHES WIDE

SPRING STEEL (CARBON AND ALLOY) MERCHANT BARS FORGING BARS

AUTOMOBILE BUMPER SECTIONS MISCELLANEOUS BAR MILL SECTIONS

BILLETS SHEET BARS

AUTOMOBILE SHEETS COLD ROLLED SHEETS SINGLE PICKLED SHEETS BLACK SHEETS

MICHIGAN METAL (FOR VITREOUS ENAMELING)

DEEP DRAWING QUALITY (IN ALL GRADES, WIDTHS UP TO 92 INCHES)

STRAN-STEEL FOR HOMES

GREAT LAKES STEEL CORPORATION

Division of National Steel Corporation

ECORSE, MICHIGAN

Industry's Expansion Barely Begun—

THE automotive industry, which is certainly a sensitive barometer of the nation's economic mood, becomes regarded more and more as a guide in whose footsteps other great industries follow. The reasons for this reputation are clear. It was the automotive industry that blazed the trail out of the debacles following in the wake of 1921 and 1929; it was this industry that pioneered the road during the intervening period toward prosperity. Now, after the sudden chart dips of 1937, the country anticipates the same leadership; and already there are signs that the expectation is warranted.

There are several causes for the automotive industry's heralding the economic way. It has, to begin with, the natural advantages of youth; vitality, strength and imagination. Its executives are men noted for unusual vision and initiative, men of whom leadership is characteristic. Added to this, there is that most salient factor of the industry's extraordinary sphere of influence.

In 1936, for example, the production of motor cars was responsible for the use of 20.8% of all the steel produced in the country; 53% of the malleable iron; 80% of the finished rubber goods; 73% of the plate glass; 46% of the upholstery leather; 89% of the gasoline; 52% of the lubricating oil; to say nothing of the amounts consumed in nickel, lead, copper, lumber, textiles, paints, etc.

This article, however, is primarily concerned with the automotive industry's effect on the building industry, the rehabilitation of which, in great measure, governs any return of normal economic conditions. Strenuous efforts are being made, through all possible means, to foster the building trade. To what extent does the motor industry influence factory construction? And what are the possibilities of the industry as an immediate stimulant in this sphere?

Let us take the year 1926 as representing normal conditions. During that year there was expended in the United States on the construction of all types of industrial buildings the sum of $471,249,000. Of this amount manufacturers of motor cars, parts and accessories spent the sum of $65,930,000. Assuming that the percentage of raw products used in the manufacture of motor cars—steel, iron, glass, rubber, and the like—effects a corresponding percentage of the new building construction undertaken by these contributing industries, then the motor industry was indirectly responsible for an additional expenditure on building construction in an amount of $53,087,000. Thus the industry was directly and indirectly responsible for an expenditure on construction amounting to $119,017,000 out of $471,249,000, or 25% of the total.

And what sum can the motor industry spend on new factory construction during the coming year if it receives proper encouragement? In 1926 we produced 4,301,000 cars, including trucks. Hence the expenditure in that year by the industry on building construction amounted to $15.33 per car. There was a supplementary expenditure of $12.33 per car on new building construction by the suppliers of raw materials.

Under normal conditions, we could now expect a production of approximately 5,000,000 cars per annum. Such a production, based on a direct and indirect building expenditure of $27.66 per car, would effect an expenditure in the construction of new factory buildings amounting to $138,000,000, based on 1926 construction costs. This amount, however, is reducible to $121,000,000 because construction costs today are 12% lower than they were in 1926. Obvious advantages would accrue to industry as a whole from such a construction program.

It might be said that there is no need for additional industrial construction because improved manufacturing methods have intensified production, resulting in greater output from a given area of factory floor space. To a certain extent this is true. Not long ago an assembly plant produced one car per day per 2,100 sq. ft. of floor area. A fairly efficient assembly plant will now produce one car per day per 1,200 sq. ft. of floor area. But other factors must be taken into consideration.

To avoid excessive investment in inventories of sub-assembled parts, manufacturers were wont to carry the least possible amount of stock.

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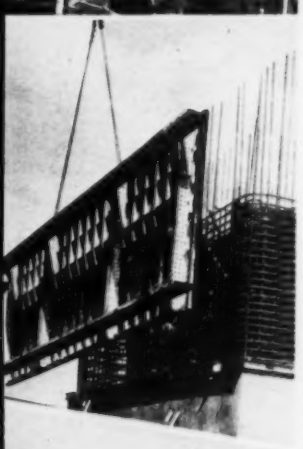

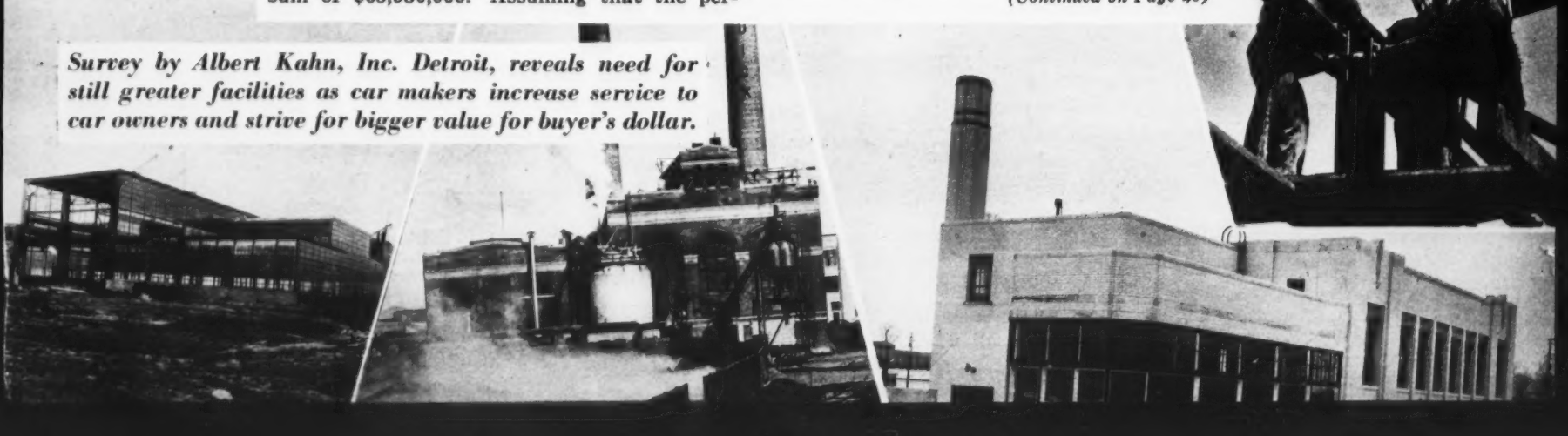

Survey by Albert Kahn, Inc. Detroit, reveals need for still greater facilities as car makers increase service to car owners and strive for bigger value for buyer's dollar.

Willys Continues Rise

Limiting its operations to no more plant space than necessary Willys aims to hold its place in the lowest price field. Rearrangement of the interior of the big plant above has worked in this direction. At the right is the engine assembly line.

THE striking and dramatic growth of Willys-Overland Motors, Inc., to its present position in the industry has been one of the outstanding achievements in post-depression automobile history.

The entire development of the company has been in a new low price field which is not in conflict with that occupied by any other manufacturers and each successive step in the progress of the organization has been designed to further emphasize its position in this field.

It has also been marked by a gradual expansion of the line of passenger cars built from a single model to a full line of enclosed body types and a comprehensive entry into the light delivery truck field. The successive moves in the addition of new models have been brought about as the result of a constantly widening demand for its products in a steadily broadening field of sales.

It is interesting to note that the two most sensational general additions to the Willys line have come since October, 1937.

During the early part of this year important additions to executive personnel and a surprise move in the introduction of new and important models to the line of cars manufactured by the organization, adding to the strength of its position in its own field of sales, emphasized the initiative and enterprise which has characterized the progress of the company.

Executive additions included the election of William C. Cowling, former general sales manager for the Ford Motor Co., and Delmar G. Roos, former chief engineer for the Studebaker Corp., consulting engineer for Humber - Hillman - Talbot - Sunbeam, Ltd., of London, England, and past-president of the Society of Automotive Engineers, as vice-presidents.

Cowling, in the general executive offices of the Willys organization, and Roos in charge of engineering.

On March 23, 1938, closely following the additions to the executive staff, the new Willys Clipper family sedan was announced. With the standard body type in the Clipper model priced at $549 delivered at Toledo, O., Federal or state taxes or transportation charges not included, this model showed the fixed intention of the organization to advance its penetration into the low price buying group.

It was also an indication that the Willys forces were spurring their activities at a time when economy has become one of the governing factors in the purchase of automobiles.

Craftsmen still reign on the body line.

Announcement of the Clipper model was immediately followed by an upswing in both retail and wholesale sales throughout the country that justified the executives of the company in their belief that a car of the Willys Clipper type and price would find an immediate market.

Early this year, the Willys Export Corp. issued a statement that, during the past year, sales of Willys cars in the export field had doubled and that the Willys is now represented in 86 foreign countries. This marks an expansion in export activities from 61 countries early in 1937.

Plans for extended operations in foreign countries which will materially affect sales in an upward direction are now being developed and it is reported that they will be completed within a few months.

The financial history of the current company reveals a steady record of earnings except for the first three months of operations in late 1936, during which actual production of cars did not get under way until the start of the third month of the first quarter of the company's fiscal year.

Under the direction of David R. Wilson, president, the growth of Willys-Overland Motors, Inc.,

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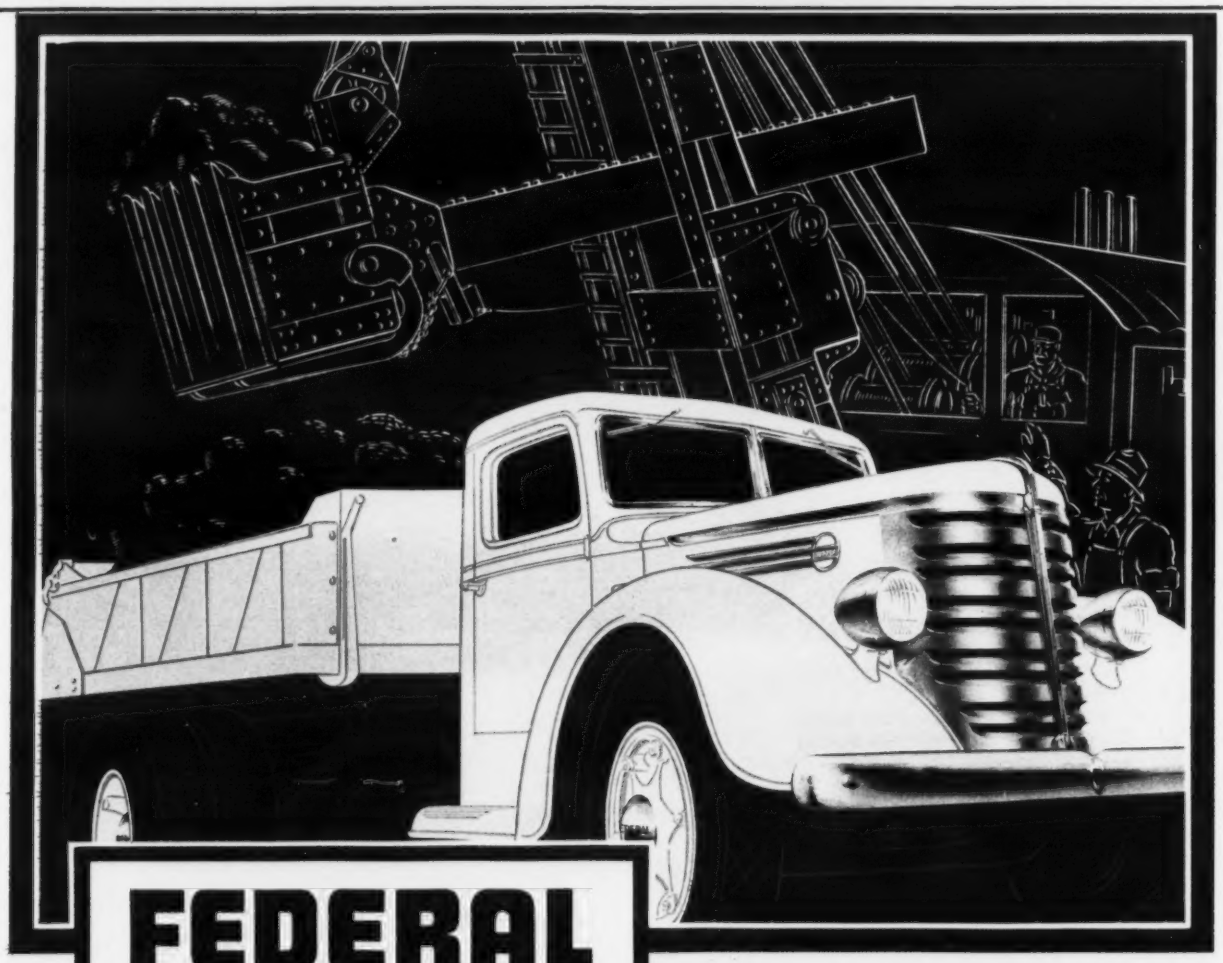

FEDERAL
FITS THE NEEDS OF INDUSTRIES "ON THE UP!"

LATEST reports show construction industry contracts 21% ahead of 1937! In this vital and active industry, where motor trucks constitute over 40% of the equipment used, Federals have long held the respect and confidence of engineers and contractors. Where the going is tough, "beyond the detour signs", and where the road hasn't yet been built, Federals prove their stamina and sturdiness. Construction men know Federals can "take it" on the toughest of jobs.

It will pay you to sell Federals to those in your community who are enjoying *extra good* business in construction work. Ask any contractor or engineer you know what *he* thinks about Federal! Then ask us about the complete Federal line, the generous discounts, the friendly factory policies and the *big, regular profits* that come with selling Federals. And remember, too, that Federal builds "the handsomest trucks on the road". A large variety of models and sizes meet the requirements of the food, beverage, building, oil and all other industries whose business is good year in and year out. Federal's merchandising program makes truck selling easy. A letter or wire to K. M. Schaefer, General Sales Manager, will bring complete details of the Federal franchise.

43 MODELS
3/4 TO 8 TON
4 AND 6
WHEELERS

FEDERAL TRUCKS

Federal Motor Truck Company, 5870 Federal Ave., Detroit, Michigan
LEADERS IN COMMERCIAL TRANSPORTATION FOR 27 YEARS

THE PAST 6 YEARS AT PACKARD

The past six years have seen Packard in the forefront of the national fight for recovery.

Men and machinery have gone to work in increasing numbers under the Packard banner. Increasing numbers of motor cars have resulted. New jobs have been created by the thousands—and buying orders have spread this contribution to prosperity to more than a dozen industries.

For Packard, the depression has been a challenge boldly answered. Packard has met discouragements with courage—with the striking results shown below.

And Packard's latest move—a reduction of $100 in the price of the Packard Six—has once again proved by a rising bank of orders that boldness pays, whatever the times or trend.

MEN

TRIPLE THE NUMBER were given employment in 1937 as were employed in 1932. Productive hours—basis of compensation to factory employees—increased to more than four times the 1932 total.

MACHINERY

MARKETS WERE COMBED to find machinery for plant expansion that could make Packard quality possible in large volume production. (At left) Alvan Macauley, President, and M. M. Gilman, Vice President and General Manager, ponder the location of new batteries of equipment.

MOTOR CARS

THE PRODUCT OF THE NEWEST, most precise and ingenious machines, the new 1938 Packards roll off the lines in impressive numbers. Since 1932, Packard production has stepped up nearly 1300%!

Photos by courtesy Albert Kahn, Inc., Detroit

Modernization of all industrial building followed the lead of automotive since 1903, says Moritz Kahn, Albert Kahn, Inc., Detroit, who has designed 19 per cent of all industrial buildings in the United States and a much heavier percentage of automotive buildings. An outstanding example of the latest trend is the General Motors Linden, N. J., plant, above, which was opened late in 1937. These buildings combine utility with beauty as exemplified by the entrance to the DeSoto welfare and employment building in Detroit, center.

Plenty of sunlight, pleasant surroundings and clean, efficient interiors are the aim in automotive industrial building design. Above is the Chevrolet assembly plant at Baltimore. The industry and its subsidiaries and suppliers have built close to a half billion dollars worth of such buildings in the past five years. Close to one hundred millions or more are still in the process of construction or projected as quickly as the industry can resume normal pace and a resumption of normal pace would lead to still further building in the future.

Automotive Leads in Building Design

THE automotive industry has had a greater influence on modern industrial architecture than is generally recognized. Prior to the year 1903 little attention was paid to the design of factory buildings. Any type of structure was then considered adequate for manufacturing purposes, so long as it had a roof and four walls for protection against the elements, with a few windows to admit light and air. In planning such buildings the principles of economical production were given scant thought. There was no proper arranging of departments for successive operations. Old established practice governed the spacing of interior columns, regardless of the requirements of the manufacturing equipment. Insufficient attention was paid to story heights, with the result that the clear heights from floor to ceiling were often inappropriate for the purposes in hand. The workers were given improper working conditions. Sanitary, heating and lighting installations were inadequate. No provisions were made for future extensions which would become necessary with any growth of the business. In general, the old type of factory was an unsightly, inefficient structure—examples of which are still to be found in our manufacturing districts.

But with the advent of the motor industry a new type of factory came into being. In the early 1900's the manufacture of motor cars started its career as an important industry. Its pioneers were enterprising men of great initiative and keen vision. They foresaw the great possibilities that lay before them, and realized that the young industry needed a type of factory which would facilitate economical production—a factory in which departments would be properly grouped and arranged for appropriate sequence of operations; in which the materials in course of production would flow in the most direct manner and with the least amount of handling; in which the interior columns would be arranged to suit the layout of the manufacturing equipment, and to facilitate economical production. These leaders realized that the success of the young industry, in great measure, depended upon the use of efficient equipment, housed in buildings which would enable that equipment to be operated effectively.

In 1903 the Packard Motor Car Company started erection of their present plant in Detroit. At that time they were occupying buildings, on the same site, similar to those being used by the textile industry in the New England State. In these buildings heavy timbers were used for columns and beams, resulting in what was termed "slow-burning, mill construction" About this time two innovations in building construction were introduced in America: reinforced concrete, a fireproof material to replace slow-burning timber construction; and steel window sash, to replace combustible wood sash. These two innovations made possible a new type of design, namely a fireproof building with large spans between columns and with extensive areas of window sash in the walls. These innovations were immediately adopted by the executives of the Packard company for their new plant. They started with a structure of very modest proportions; but it was so designed that extensions could be made as the necessity arose, without disorganizing the scheme of production originally laid out. The plan of the building was very simple, because it was considered that simplicity tended toward efficiency. In this building, and for the first time in this country, large windows were installed in the exterior walls to admit an abundance of daylight and natural ventilation.

In 1906 Henry Ford built the first unit of his Highland Park Plant. He had selected for his site the old State Fair Grounds, consisting of many acres of land. He envisaged a plant which would eventually cover the entire area. Here again, the first unit was so designed that it could be extended as the business grew. In due course numerous extensions were added until the plant covered the entire site according to Mr. Ford's original conception. With a preconceived plan in mind, this first unit so well formed an integral part of the finally developed plant that it is difficult to determine, today, the portion which comprised the first unit.

Within a short period of time the construction of the Ford Highland Park Plant was followed by others—the Cadillac, Chalmers,

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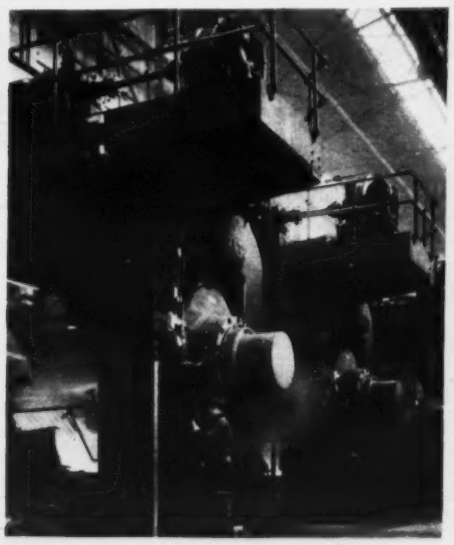


Health of workers is a paramount requirement in modern building design and equipment. Nash, Kenosha, Wis., fender paint line (left), cascading water carries away fumes and particles. Republic Steel, Cleveland (center), even handling hot steel is a cool job in clean air. Dodge, Detroit, one-half ton truck plant (right), has shadowless lighting as bright as day.

LEADERSHIP

CHEVROLET is proud to be a unit of an industry that has proved its leadership among industries—and proud that it has become, itself, one of the leaders within that industry.

To the millions of men and women whose patronage has rewarded Chevrolet, and to the thousands of dealers whose loyalty and integrity have won for Chevrolet its high position in the automotive industry, Chevrolet pledges continued adherence to its traditional standards, both in its products and in its policies.

CHEVROLET MOTOR DIVISION, *General Motors Sales Corporation*, DETROIT, MICHIGAN

CHEVROLET

BANTAM'S A HIT!

FACTORY ON FULL 5 DAY WEEK TO KEEP PACE WITH DEMAND!

*ALL PRICES DELIVERED COMPLETE AT FACTORY

HERE'S BANTAM'S 3-POINT PROFIT PLAN

1. A GREAT CAR WITH A GREAT SALES STORY!

Up to 60 miles on a gallon—as low as $439 delivered at factory—up to 60,000 miles on a set of tires—costs less than ¾c per mile for gas, oil and tires (80% less than other cars or trucks)—rugged construction—smart lines—¼ ton payload capacity.

2. A BIG UNTOUCHED MARKET—NO COMPETITION!

Bantam Trucks are ideal for druggists, florists, meat-markets, and nearly every other store or shop with a delivery problem—for auxiliary "special delivery" service for fleet operators. Bantam Business Coupes are ideal for salesmen, solicitors, collectors, etc. The Bantam Roadster makes a hit with everyone—particularly the younger set.

3. A MONEY-MAKING FRANCHISE—IDEAL COMPANION LINE!

No extra overhead required—no separate sales or service set-up needed—no trade-ins on more than 50% of sales—liberal discounts.

BANTAM

AMERICA'S ONLY ECONOMY CAR

RUSH THIS COUPON NOW ⟶

AMERICAN BANTAM CAR COMPANY • BUTLER, PA.

. . . AND HERE'S THE "LOW DOWN" FROM BANTAM DISTRIBUTORS AND DEALERS

"Opening day crowds far beyond expectations. Hollywood movie colony very enthusiastic about smart styling of the new American Bantam."
Light Car Distributors, Inc., Los Angeles, Calif.

"The new Bantam "60" has received a rousing reception here and we look for a splendid volume in 1938."
Wells-Richie Motor Co., Richmond, Virginia

"Just received one carload of your new American Bantam "60"s and are very pleased with the appearance and performance of these cars. They create great interest among the public.
"The first day we had them in our Show Room, about three to four hundred people came in to see them. As far as price, we are on the Coupe and Panel one hundred dollars cheaper than the English Austin, which car is very popular in Montreal. We anticipate good business for the future."
Benoit Automobile, Limited, Montreal, Quebec

"The cars are causing quite a sensation. I expect this showroom has been the busiest spot in Oklahoma City the last few days. The room is filled with people from early morning till I close at 10 o'clock at night. We are hearing a lot of praise for the cars and prospects look very good for some real business. The cars are all you said they would be and even more. I am very much pleased with them."
Cecil I. Brooks, Oklahoma City, Oklahoma

"We have already established Bantam in over 40 foreign countries and expect to exceed our commitment of 2500 cars the first year. We must have 60 cars weekly from now on."
American Steel Export Co., New York

American Bantam Car Co.
Butler, Pa.
Gentlemen: Please send immediately complete franchise information on the new Bantam "60".

Name.....

Address.....

Nash Stresses Selling Effort

Merger with Kelvinator results in widespread Plant improvement and rearrangement of equipment. Led way in used car sales promotion.

Creating new efficiency in the operation of its 31 acre plant at Kenosha through new equipment and methods Nash has nearly doubled its capacity in the past eight months.

LESS than eighteen months ago—on Jan. 4, 1937, to be exact—a new industrial giant was born.

It was the $57,000,000 Nash-Kelvinator Corp., created through a merger of the Nash Motors Co., long-established independent manufacturer of automobiles, and Kelvinator Corp., the diversified products of which bear the oldest name in electric refrigeration.

Soon after the merger, both the Nash Motors Division and the Kelvinator Division, as they became known, demonstrated the new corporation's faith in the future by embarking upon important programs of expansion. These activities are still marching forward under the generalship of George W. Mason, president of the merged companies, who brought Kelvinator through the depression with flying colors.

From the automotive standpoint, as well as that of refrigeration, Nash-Kelvinator, which in 1937 enjoyed an excellent year, today is hewing to the line, continuing development of its products, production methods and plants, preparing for the more prosperous years its leaders are sure will come.

Almost before the ink on the Nash and Kelvinator consolidation papers had dried, President Mason was inaugurating the Nash Motors development program. He had engineers survey Nash's three huge plants in Kenosha, Racine and Milwaukee, Wisconsin. Then, in May, 1937, he announced a $2,000,000 program of plant expansion and modernization which would virtually double production capacity. This program, carried on through the summer, was completed in the early fall, when the 1938 Nash cars began rolling off the efficient new assembly lines.

Still another important step was taken Jan. 3 of this year when heads of major departments of the Nash Motors Division were transferred from Kenosha to the Nash-Kelvinator headquarters in Detroit. Purpose of this move, it was explained, was to concentrate department heads of both divisions of the corporation in Detroit, as well as to establish executive and sales activities of the motors divisions in the center of the automobile industry.

Bodies are lined up in an orderly fashion on this line which carries them with careful timing to meet the chassis with which they will become a completed automobile.

During the year 1937, in which the Nash Motors Division enjoyed outstanding sales success, preparations were made to employ the greatest number of people in the organization's history, not only in the factories, building cars, but in the field, selling them.

As a matter of fact in the fall, when new car manufacturing operations were well under way, more than 10,000 workers were employed in the Kenosha, Racine and Milwaukee factories, while at least 15,000 persons in the field—distributors, dealers and members of their organizations—were deriving their livelihood from the sale of Nash cars.

"It is our sincere hope that business within a short space of time will permit our again employing this number or an even greater number of people," declares President Mason. "We are bending every effort to stimulate car sales so this will be possible."

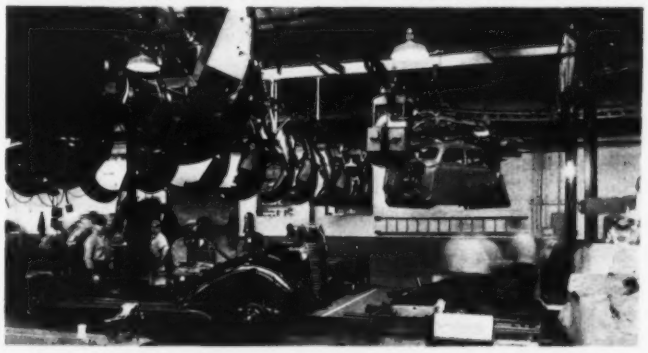
On the national sales front, as well as in its factories, the corporation is devoting extra effort to the business of combating the present slump in business. A good example of this extra "sales push" is the huge February-March national used car sales campaign, just successfully concluded by the Nash Motors Division.

When, early in the year, it was seen that the market was glutted with used cars and that this over-supply would seriously impede the movement of new automobiles, the sales and advertising chiefs of the division got busy and did something about it. Working day and night, they developed a used car merchandising program and rushed it to dealers throughout the country so that it could be launched everywhere on Feb. 1. The sole purpose of the campaign was to help dealers clear their decks of used cars and thus enable them to devote their entire attention to sales of new cars during the spring and summer selling seasons.

Unique in many respects was this used car campaign, which preceded the automobile industry's National Used Car Exchange Week by more than thirty days. It featured something entirely new in used car selling—a national contest for used car buyers. It called for parades, in which new, 1938 Nash conditioned air cars were used to attract attention to the outstanding bargains available in used cars.

In addition, it provided every Nash dealer with enough tested used car sellling ideas to keep his organization busy morning, afternoon and evening, seven days a week, the theory being that hard, constructive work was bound to result in sales.

And result in sales the campaign did! At the end of the first ten days, it was found that the Nash dealer organization had sold 41 per cent more used cars than during the first 10 days of February, 1937. And, furthermore, Nash new car sales during this period reversed the seasonal trend and climbed 20 per cent above those of the first ten days of January, the preceding month.



One of the numerous new parts delivery conveyors which expedite operations at the final assembly line.

Used car sales by the Nash field organization continued to show encouraging increases through February. And, after, National Used Car Exchange Week, in which Nash participated with the rest of the industry, had run its course, many of the divisions' dealers announced that their used car inventories were at the lowest point in several years and that they were ready again to push new car sales.

And even greater nationwide sales drive is now being launched by the Nash Motors Division. It is being aimed at buyers of new cars—so that the corporation's expanded and modernized production facilities in its three Wisconsin plants can again run full speed ahead.

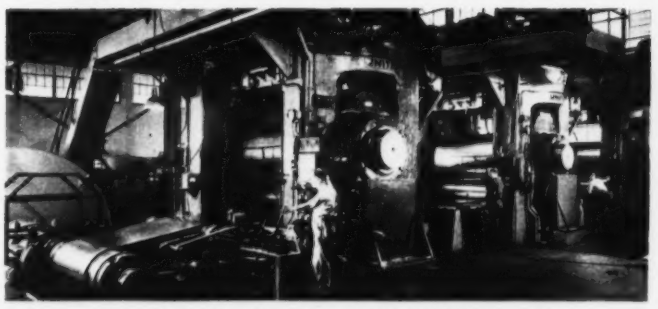
From the standpoint of production, the Nash Motors plants are ready to meet the heaviest demands for cars in their history and to employ their greatest number of workers.

The production capacity of the main plant at Kenosha, which covers an area of 31 acres, in 1937 was doubled without, however, increasing the size of the buildings or their number. To accomplish this, it was necessary to revise the layout of machinery and the routes over which raw materials and materials in process flowed, as well as to introduce equipment of advanced design.

The development of Nash Motors' production facilities was by no means ended with the completion of the big 1937 program. Improvement is still going forward in 1938. For example, the Seaman Body Division is now having built one of the largest presses ever designed for the industry.

Armco Keeps Pace in Steel

AMERICAN Rolling Mill Co. has made numerous contributions to the progress of the automobile industry, culminating in the development of the continuous method of rolling sheet steel without which, it has been said, the modern streamlined car with all-steel body and top would not have been practicable. Thus the mutual interest of supplier and buyer in the automotive field are perhaps closer than in any other industry.



Armco's Cold reduction mill in Middletown, O.

ARMCO turned its attention to the automobile field in 1910. In those days what few closed cars there were had wooden bodies, and open car bodies consisted of a wooden frame, around which sheets of steel were "wrapped." Practically all parts were flat formed and about the only fabricating process was that of beading. Only confidence in the automobile's future could have dictated Armco's moves at that time.

Foreseeing that drawing quality steel soon would be required because of the growing trend toward curves in automobile body design, ARMCO in 1911 developed what it called "Silver Finish Auto Steel" especially for the automobile trade. It is said to have been the first sheet made to meet the industry's special requirements, and was responsible for changing the practice among buyers from ordering by process to ordering by grade terminology. Although this specialty sheet was higher in price than the black full-pickled, three-pass, cold-rolled sheets used exclusively theretofore, the quality was better and it was possible to do so much more with it that it became widely used by the body building branch of the industry.

Huge blocks of hot steel are squeezed to ribbon like sheets at the Armco plant. This strip is leaving the seventh set of rollers.

In 1912 the purchasing agent for the Cadillac Motor Car Co. visited the ARMCO plant at Middletown to see if it were not possible to develop a special fender steel suitable for two-coat dipped enameling. This would require a better surface than the grades available, which required in finishing three or four coats of enamel with hand rubbing in between. This was injurious to the lasting quality of the enamel.

The result was that ARMCO produced its "Middletown Special Fender Grade" which was supplied to the automobile industry for many years. It was even higher priced than "Silver Finish Auto Steel," but the motor industry found that although it cost more, its improved quality over the cheaper grades made it an economy in the long run.

In 1914 ARMCO developed an open annealing furnace for the heat-treatment of light-gauge sheets, and made the first "full finished, normalized sheets" for use on severe drawing jobs. This new specialty sheet steel was called "Silver Finish Radiator Casing Steel,' and remained the standard of the automobile industry for radiator shells for more than ten yeas.

The next great sheet development, and the most important of all to the automobile industry, came in 1923 when ARMCO placed in operation the first successful continuous sheet mill at its Ashland, Kentucky plant. The progression from continuous sheet mill to continuous wide strip mill was made at Butler, Pa., and ARMCO then consolidated the two, bringing all basic patents on the continuous method of rolling sheets and wide strips of iron and steel under ARMCO control. Before development of the continuous mill all sheets were rolled by hand. The continuous mill made it possible to produce sheets of better drawing quality and finish, greater uniformity of gauge, and in lengths which could be cut up more economically by the body builders. It also inaugurated a reduction in the price of steel sheets of the grades used in automobiles, be-

(Continued on page 44)

Oiling America's Progress

The actual tax on gasoline per gallon in the various states is shown in the map above. Each symbol represents 1 cent. Gasoline tax on the average is equivalent to 35 per cent of the cost of the product.

DURING the past 20 years the United States has gone through one of the greatest revolutions in history. True, it was an unorthodox revolution, unaccompanied by bomb throwings, party "purges" and the fulminations of those who would bring about the millenium in six months. The goal which the revolutionaries set themselves was the betterment of the nation as a whole rather than that of any one particular selfish group. Therefore they made it a revolution in the best sense of the word.

Where the old-fashioned revolutionary uses a soap box as his base of operations our modern American revolutionary uses the laboratory; and while in the case of the former the end-product is just so much verbiage, the results achieved by the latter are measured in terms of better living and enhanced opportunities for everyone. Working hand in hand with industry American scientists —the greatest revolutionaries of the age—have transformed the American scene.

Scores of products considered luxuries 20 years ago now are in common use. Millions of new jobs exist because American inventive genius and industrial efficiency have enabled a constantly growing number of people to buy and use new and improved products.

Take the case of the automobile. other articles in this issue discuss the companies which build automobiles. How about the millions who use them? Twenty years ago less than 6,000,000 families owned cars. Owning and running an automobile in those days was an expensive luxury to be indulged in only by the comparatively well-to-do. Today there are more more than 25,000,000 cars on the nation's highways. More than half of these are owned by families with incomes ranging from $20 to $30 per week. This typically American development —in Europe it is still only the wealthy who own cars—has had greater economic significance than anything that has transcended before or since in the nation's history.

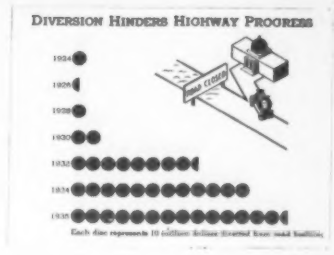
The brains and brawn of many an industry were called upon to reduce the cost of automotive transportation to the point where even the family of modest means could enjoy its advantages. Motor fuel represents a major component of the total cost of running an automobile, yet the petroleum industry has made this product generally available at prices that practically everyone can afford to pay.

In 1937 U. S. motorists used approximately 19,500,000,000 gallons of gasoline. This quantity, exclusive of taxes, cost them an estimated $2,840,000,000. If motor fuel prices had remained unchanged since 1920, their 1937 gasoline bill would have been $5,800,000,000, nearly $3,000,000,000 more than they actually paid.

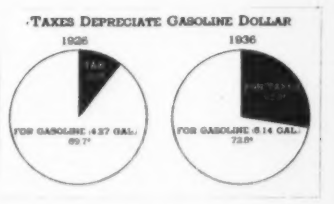
That is one aspect of the revolution plotted and brought about by scientists working in petroleum laboratories, a revolution that in two decades has helped to quadruple the number of cars in use. Savings, of course, have not been confined to users of motor fuel. All consumers of petroleum's more than 300 useful derivatives likewise have benefited, but because gasoline is the industry's major product, its case is cited.

The beginnings of petroleum research go back some 75 years to the days when oil pioneers were faced with unprecedented problems. As the industry grew, so did the scope and intensity of its research. Thousands of scientists in numerous petro-

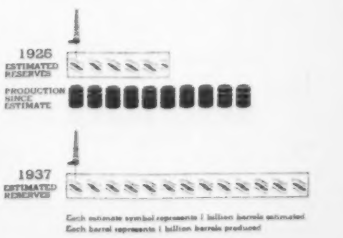
(Continued on Page 43)



Diversion of gasoline taxes to other than road purposes closes highways to those who pay for them.



Percentage of tax represent in each dollar spent for gasoline is shown above.



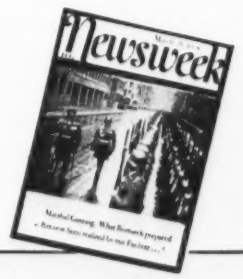
Gasoline shortage is not a real threat.

WHO'S BUYING THE AUTOMOBILES TODAY?

Today, ESPECIALLY, the best market for the automobile advertiser is among the top families . . . the families of more than ordinary means (which usually means families of more than ordinary intelligence) . . . the families that are not compelled to prune their expenditures to below the automobile-buying level.

This . . . by the very nature of its contents and its unique editorial formula of NEWS SIGNIFICANCE . . . is the market in which Newsweek's circulation is concentrated. Only substantial, active, thinking people would be attracted to a magazine that not only digests the news but also INTERPRETS it . . . that is concerned not only with what is happening today and WHY but also with what today's happenings may mean tomorrow . . . that contains the opinions of such well-known authorities as Raymond Moley on Government and Politics, Sinclair Lewis on Books, George Jean Nathan on the Theatre, Ralph W. Robey on Business and Finance.

When you advertise in Newsweek you are reaching more than 300,000 of your best prospects. And you are reaching FAMILIES . . . women as well as men, young people as well as grown-ups. To move your cars economically this year, be sure that Newsweek has an important place on your advertising schedule.



CAR BUYERS

Business Executives and Professional Men and Women constitute the most profitable market for automobile advertisers. And recent surveys show that 62 per cent of Newsweek's circulation is concentrated in these two groups.

Newsweek

THE MAGAZINE OF NEWS SIGNIFICANCE

Here's An Answer To "*Where Do We Go From Here?*"

TWENTY-FOUR years ago, Dodge became a member of a great industry. For twenty-four years, Dodge has held steadfastly to the policy that there is no substitute for an honest product, honestly priced.

One look at the Dodge record will convince anyone of the soundness of this policy. It was sound twenty-four years ago. It is sound today. It will be sound twenty-four years from now. That is why Dodge has never stopped—*and never will stop*—in its efforts to give the American people the greatest value that their car and truck dollars can buy.

To those who are asking themselves the question "Where do we go from here?" Dodge's answer is —*and always will be:*

"*We're* going *ahead!*"

Dodge

Division of Chrysler Corporation

Rubber Set for Rebound

Industry Comprising 475 Companies with Investment of $949,000,000 Spends Average of $5,5000,000 Annually for Research

Continental Motors Corp. has centered the greater part of its activity at present in its plant at Muskegan, Mich. During the past five years it has been most active in the development of all types internal combustion engines.

SINCE automotive requirements consume approximately 80 per cent of all crude rubber brought into the United States annually, it requires little deduction to determine to what extent the welfare of these two industries is interlaced. Deprived of its automotive market in 1937, it is possible that the rubber industry's employment would have dropped below 50,000 workers rather than the 217,000 who earned their livelihood from it in that year.

Naturally, most people think of rubber, in connection with automotive uses, merely as tires upon which our vehicles moved smoothly along our boulevards and by-ways. Actually several pounds of rubber are used in various parts of the car to absorb shock, silence noises and reduce vibrations. In addition there are many items such as battery cases, insulation for wiring, rubber belting for fans and generators, rubber belting in plants; there are boots, shoes, aprons and other types of rubber equipment which find uses in automotive plants and in automobiles in quantities almost beyond belief.

In the case of tires alone it is very probable that profit or loss to cotton raisers in the south is determined to a great extent upon prosperity in the tire industry, which is in turn dependent upon prosperity in the automotive industry. During 1937 the production in tires consumed 241,390,000 lbs. or approximately 10 per cent of all cotton used in the United States. Loss of this market for a single year would no doubt bring about chaotic price conditions among cotton growers.

Taken by itself the rubber industry is comprised of about 475 companies not all of whom make tires. Many are devoted to mechanical goods, hard rubber products, hose and so forth. During the past few years the increase in rubber tired tractors is opening still wider markets which are in a sense automotive. The 475 companies comprising the rubber industry have an investment of approximately $949,000,000 and during 1937 created products valued at wholesale at about $811,406,000. About $464,368,032 or more than half this total represented tires and tubes upon which the government collected more than $40,0000,000 in excise taxes.

In addition to its payments for wages (which in its tire and tube divisions are reputedly the highest hourly rates in the United States) its disbursements for materials and operating costs, its expansion and upkeep, costs, dividends and other divisions of wealth the rubber industry during the past 10 years has spent better than $55,000,000 of dollars for unremitting research and technological development.

Industry's Growth Barely Begun

(Continued from Page 15)

This method of operation caused wide fluctuations in the curve of employment. In their desire to alleviate this situation the leaders of the industry are now adopting the policy of carrying fairly large stocks of sub-assembled parts, thereby spreading employment over a considerably longer period of the year. The carrying of these stocks requires additional floor space and this offsets the saving in floor area occasioned by improved manufacturing methods. And there is another reason which is also of consequence. Today the purchaser of a car gets much more for his money than he did in the past. Cars are now sold completely equipped with bumpers, spare tires, radios, heaters and all the other accessories. The manufacture, sub-assembly and the carrying of these accessories in stock accounts for additional floor space.

With the large backlash in building construction it is apparent that the industry can, in the near future, undertake its normal construction program with little risk of over-production capacity; and this is especially true in view of the fact that a new policy has lately been adopted, namely the decentralization of production—a policy which necessitates the construction of new plants. Several of the manufacturers of cars have already launched upon ambitious building programs. It is not unlikely that this trend, in itself, may prove the initial cause for the automotive industry's once more acting as recovery's vanguard.

EVANS PRODUCTS

FOR BETTER MOTOR CARS AND SAFER, MORE COMFORTABLE MOTORING

IN recent years the Evans Products Company has saved the automotive industry and the railroads—and through them the motoring public—over $300,000,000. The company has originated, developed and manufactured an increasing number of new products—most of them important contributions to the improvement of motor cars and to the end of better, safer and more comfortable motoring.

● **EVANS BATTERY SEPARATORS**—From the vast lumber tracts and mills of the Evans Products Company in the Pacific Northwest have come for many years most of the separators used in automobile storage batteries. Made of Port Orford Cedar, the world's finest, these efficient separators are famed for long life.

● **EVANAIR-CONDITIONER**—A spectacular development of Evans Heating-Ventilating Division, the Evanair-Conditioner adds greatly to the comfort and enjoyment of motoring. Fresh, filtered air—heated or unheated—is supplied to car occupants under all driving conditions. Introduced in 1938, the Evanair-Conditioner has received an enthusiastic welcome.

● **EVANS POWER SHIFT**—Optional equipment on several different makes of 1938 cars, the Evans Power Shift has proved one of the year's most popular new-car features. The resourceful inventiveness behind its exclusive principle of operation demonstrates again the forward-looking, pioneering attitude responsible for many of Evans' contributions to the automotive industry.

● **EVANS AUTO-STOP**—The greatest highway safety improvement of a decade, the Evans Auto-Stop has convincingly reduced the annual death toll at many dangerous grade crossings. Highway departments and railroads acclaim the Auto-Stop the one practical solution to the perplexing grade-crossing problem.

● **EVANS AUTO-LOADER**—One of the first of the Evans products, the Auto-Loader has been installed in over 30,000 freight cars, increasing their capacity to carry automobiles by 33⅓ per cent. It is a striking example of the kind of equipment pioneered by the Evans Products Company, which saves industry and the public many thousands of dollars each year.

EVANS PRODUCTS COMPANY. Detroit, Michigan

Products engineered for Safer, more Economical and Efficient Transportation

WE were pretty sure we had a great car when some months ago we checked the final blueprints on the 1938 Buick.

It had the new and mighty DYNAFLASH engine for sparkling action—the sensationally desirable TORQUE-FREE SPRINGING for a lullaby of a ride.

Looking ahead in that promising day, we figured we had every chance of getting our sales share by reason of what this car gave the buyer for his money.

Now, when times are sterner, it appears we built better than we knew—we've got a car folks just *won't* do without!

This great new Buick was first introduced to the public last fall. Through September, October, November, it sold in steadily *increasing* volume.

In a period when sales of other cars were sliding off it went ahead, in one month actually outselling one of the Big Three of the lowest-priced field.

It's *still* going ahead—not car Number Seven or Eight, as one might expect by its price-class, but one of the season's Four Best Sellers!

There is only one explanation of such a record when made by a car in the thousand-dollar bracket.

Such a car is so good—has so much of value in it—people just won't do without it.

They buy it not only in preference to other cars—they buy in preference to waiting for easier times and readier money-to-spend!

That's the convincing sort of car you're about to drive when you first take the wheel of a 1938 Buick.

If you haven't yet handled a new Buick, you ought to—just to see what such a car is like!

"Better buy Buick!"

A GENERAL MOTORS VALUE

WHEN BETTER AUTOMOBILES ARE BUILT BUICK WILL BUILD THEM

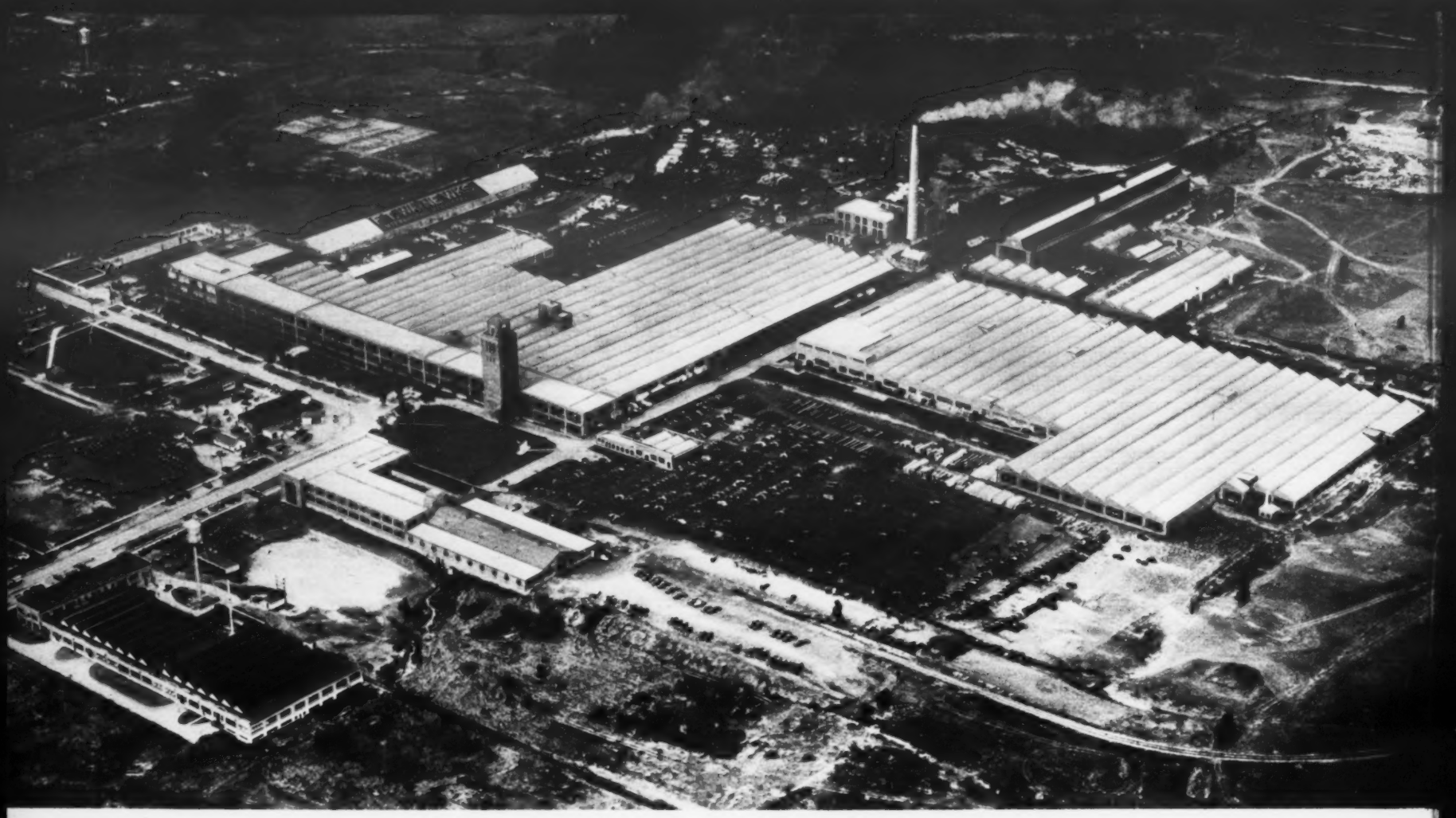
NEW DYNAFLASH ENGINE

NEW TORQUE-FREE SPRINGING

BUYER'S DIGEST
OF THE 1938 BUICK

★ NEW DYNAFLASH VALVE-IN-HEAD STRAIGHT-EIGHT ENGINE ★ NEW TORQUE-FREE SPRINGING ★ TORQUE-TUBE DRIVE IN SEALED CHASSIS ★ NEW QUIET ZONE BODY MOUNTING ★ ANOLITE PISTONS ★ AEROBAT CARBURETOR ★ NEW BULL'S-EYE STEERING ★ TIPTOE HYDRAULIC BRAKES ★ KNEE-ACTION FRONT SPRINGING ★ UNISTEEL BODY BY FISHER ★ BUILT-IN DEFROSTER CONNECTIONS ★ AUTOMATIC TRANSMISSION OPTIONAL ON SERIES 40

NO OTHER CAR IN THE WORLD HAS ALL THESE FEATURES



Spending an aggregate of $15,000,000 for plants expansions during 1937, International Harvester Co. displayed a definite confidence in the future. Capital expenditures during 1936 were in the neighborhood of $10,000,000. The view above shows the IHC truck plant at Fort Wayne, Ind., one of the newer additions to the company's widespread holdings. Following the introduction of the D line of trucks last April the capacity of this plant was found inadequate and recently contracts for a $200,000 one-story addition were let. This will add 45,000 square feet for manufacturing purposes.

IHC Bets 15 Millions on Future . . . .

FIFTEEN millions for expansion during the fiscal year ended Oct. 31, 1937, close to $126,000,000 in wages, salaries and extra compensation, almost $23,000,000 in dividends and another $22,400,000 for taxes, is the record of International Harvester Co., which makes a strong answer to those who would attack business because of its bigness. Harvester sales during the period totaled $351,928,000 and net profit was reported as $32,493,000.

True, the company is big. Its branches extend to all parts of the United States and to distant points throughout the world. Among its holdings are mines, mills and plantations. These supply the materials from which its 86 products are manufactured. During the fiscal year just closed an average of 59,347 workers which was well above the 50,400 employed in 1936 and the 47,800 in 1929.

While production schedules during the early months of 1938 have been on a reduced rate in almost all plants, the company anticipates some upturn as the farmers start buying themselves back into business again and as soon as shipping demand warrants, schedules will be increased. The company has a working capital of $247,177,000 which it is anxious to put back into harness.

A remarkable feature of the Harvester earnings distribution is the fact that while all its products are designed in themselves to be producers, the company paid in taxes an amount almost equal to its dividend payments for the privilege of producing them. If we add to the tax paid by the company, the tax paid by operators of its equipment it is obvious that local, state and federal governments get a greater share of the company's earnings than its shareholders.

But in spite of this growing burden the company has continued constant rate of expansion. In 1937 fiscal year, capital expenditures totaled $15,136,000 against $10,005,000 in 1936. These expansions included increased production facilities for tractors and trucks which totaled $6,001,000. In modernizing its merchant mills and completion of blooming mill additions at the steel plants the company spent an additional $4,694,000. Implements, plant buildings, machinery and equipment called for an outlay of $2,883,000 while branch warehouses and service station facilities were increased $1,558,000.

'37 Tax Payments Equal Dividends

In addition to these expenditures the company during the year granted two general wage increases to its workers. Its plants operated without interruption for the entire year. Extra compensation was granted in the form of three weeks' wages to employes in the United States and Canada having three or more years' service. Two weeks' wages were given to those having two years' service and one week's pay to those having one year's service. Employes in the managerial and supervisory group who were not included in these payments received extra compensations on a basis recognizing individual merit.

A new record in moving was set last fall when IHC 300 van loads of desks and equipment were moved into the new Chicago headquarters above in less than 100 hours.

While many people think of International Harvester as builders of farm equipment, a heavy percentage of its sales last year were strictly automotive. Trucks and truck parts accounted for $760,100,000 as against $89,318,000 for tractors, $75,638,000 for farm implements, including parts. Steel, binder twine and other products totaled $29,198,000 while exports of all its products accounted for $81,674,000.

Actually, International has built trucks since 1899. In that year engineers of the McCormick Harvester Machine Co. drove a gasoline propelled vehicle over the streets of Chicago. In 1906 quantity production was started and the company has been a real factor in the truck market from that time on.

In 1932 when truck registrations dropped to 180,413, International accounted for 15,752 units representing 8.73 per cent of total sales. In 1933 its registrations climbed to 26,658, representing 10.8 per cent of total sales. In 1934 in spite of the fact that its registrations increased to 31,555, its share represented only 7.82 per cent of the total market. Since then, however, its rise has been constant. The total for 1935 was 53,471 and its share of the market was 10.47 per cent. In 1936 the total was 71,958, or 11.76 per cent of the market. In 1937 the company's truck sales totaled 76,219, which was 10.7 per cent of the total market.

Last year International added its new model "D" to the line which is a stylishly designed, sturdily built truck unit. The truck was well received by the public as its registration figures indicate. Today International has 237 company-owned branches and more than 5,000 dealers in the United States and Canada. Preliminary figures for January, 1938, show International getting almost 15 per cent of the entire market.

Everything a dealer wants!

Here are 10 of the reasons why Studebaker dealers are strong and satisfied

1. Big, high quality cars are priced low—deliver at South Bend from $875 up.

2. "Best designed car of the year," says the authoritative Magazine of Art.

3. Exclusive, indispensable features include: Hill Holder; Rotary Door Latches; Planar Suspension; Built-in Fram Oil Economizer; Box Section Steel Girders.

4. Gasoline economy—first in its price class in the famous Gilmore run with 24.3 miles to the gallon.

5. Owner satisfaction—tops, according to recent national survey.

6. High resale value—proved beyond question by N.A.D.A. figures.

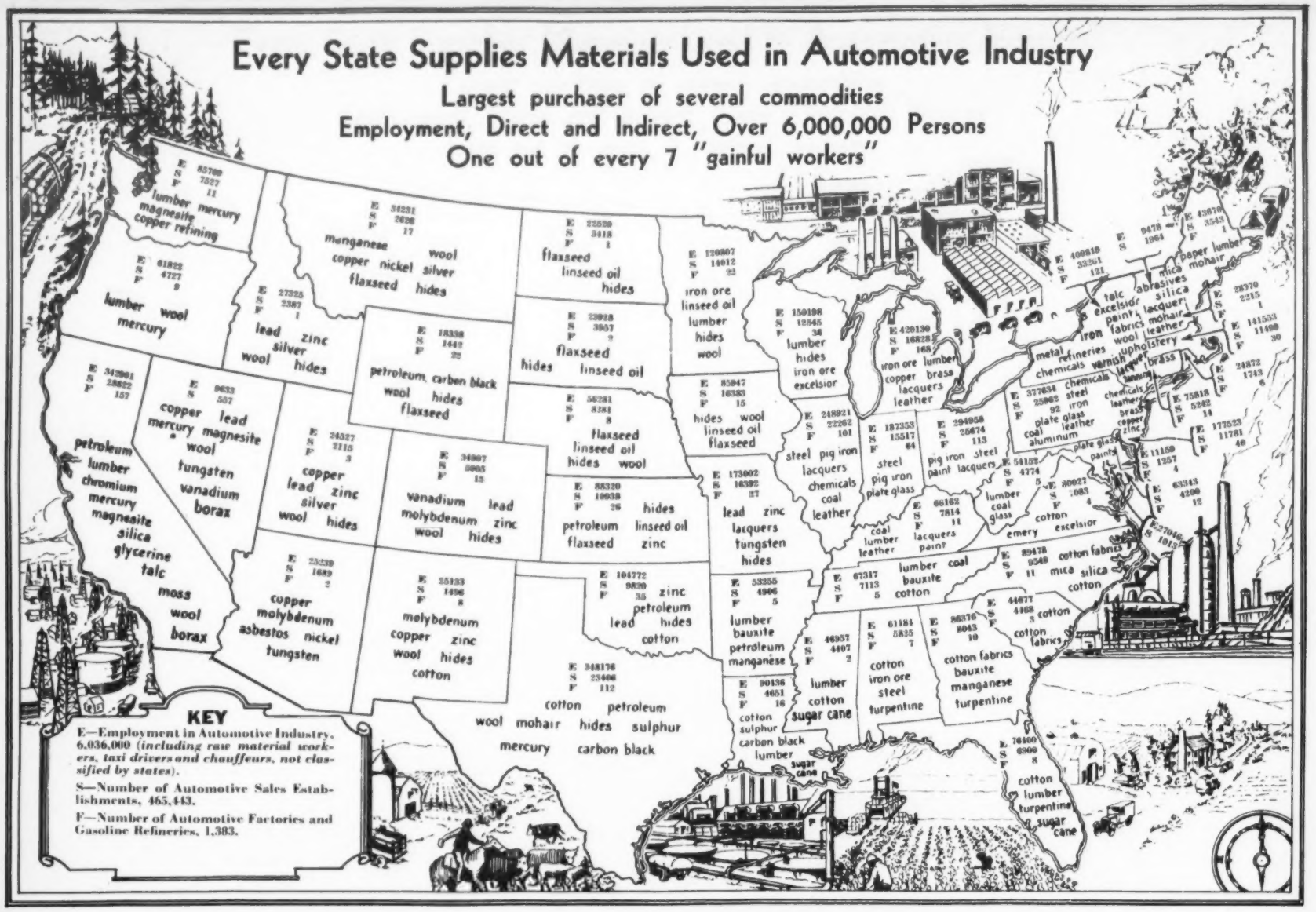
7. Used car pledge helps Studebaker dealers to keep used car stocks under control at all times.

8. Low stocks of new cars in dealer hands—44% less than at same date last year.

9. Liberal Franchise.

10. America's Friendliest Factory.

STUDEBAKER


Every State Supplies Materials Used in Automotive Industry
Largest purchaser of several commodities
Employment, Direct and Indirect, Over 6,000,000 Persons
One out of every 7 "gainful workers"
KEY
E—Employment in Automotive Industry, 6,036,000 (including raw material workers, taxi drivers and chauffeurs, not classified by states).
S—Number of Automotive Sales Establishments, 465,443.
F—Number of Automotive Factories and Gasoline Refineries, 1,383.

Figures used are from reports of the United States Bureau of Commerce for 1935

6 Million Jobs

THE most gifted statistician could never find out how many Americans derive at least part of their livelihood directly or indirectly from the automobile. But the latest federal census of business established that in the fields of automotive sales, service and for-hire transportation alone at least 1,500,000 persons are employed. A total of 1,412,635 were counted in 1935, the year the census was taken.

The grand total of establishments was 465,443, owned by 412,344 proprietors, whose aggregate payroll was $1,177,987,000 for 1,000,291 full and part-time employes.

In wholesale automotive products establishments there were 74,808 employes, while wholesale petroleum and its products plants accounted for 97,692.

There were 35,045 retail motor vehicles dealers, employing 267,022 persons; 14,343 accessories, tire and battery dealers, employing 45,751; 197,568 filling stations, employing 203,753; 66,243 public garages, employing 63,221, and 1,071 other automotive retailers employing 2,007.

Statistics for service showed 907 automobile laundries, 1,534 automobile paint shops, 1,109 radiator shops, 765 rental services, 6,905 storage garages, 5,501 top and body repair shops, 2,377 battery and ignition repair shops, 4,341 parking lots, 2,065 tire repair shops, and 724 shops for other automotive repair shops. Service shop employes totaled 45,075.

A compilation from federal statistics a year later showed more than 6,000,000 directly or indirectly employed because of the automotive industry. In motor vehicles, parts and tire manufacturing and petroleum refining, according to these figures, there were 582,873 employes, in sales and servicing, 1,124,528, on federal and state roads construction and maintenance, 335,000; driving trucks, 3,102,265; driving buses, 161,210.

The cause of education has been advanced by the motor vehicle to an extent not generally realized, according to the federal office of education. Principally this has come through advent of the school bus. This has made possible the consolidated schools which in rural areas has banished the little red schoolhouse and substituted for it instruction of the young in large modern buildings serving a wide area. This has promoted better teaching and economy. More than 3,000,000 children now are safely and quickly transported from their homes to school and back. Some 80,000 motor buses are employed in this work, covering routes totaling nearly 1,000,000 miles and serving more than 32,000 schools.

29 Million Automobiles

GOVERNMENT-gathered information in many diverse forms tells the story of United States world leadership in all things automotive.

To begin with, of the 40,548,945 automobiles in the two hemispheres 29,650,000, or nearly three-fourths, are in this country. In all the world there are 9,687,118 miles of roads. The United States has almost one-third, 3,065,000 miles, of these. Its mileage nearly equals that of all of closely criss-crossed Europe's, 3,522,270 miles.

In the world at large there are 4.2 automobiles to every mile of road, while in the United States the quota is more than double that figure, or 9.3 per mile.

Automobile plants in the United States and Canada (the latter owned in this country) produce more than four times as many cars as the rest of the world combined. Comparative figures for 1936, the latest of the Commerce Department showing the world comparisons, disclose that of 5,816,022 motor vehicles manufactured only 1,199,740 were built outside this country and the Dominion.

The export picture is similar. Shipments abroad by all nations totaled 503,543 cars, 341,326 of which were built in the United States and Canada.

The tremendous flow of freight traffic created for the railroads by this country's automotive industry is approached nowhere else on earth. Interstate Commerce Department statistics show that railroads derive $500,000,000 revenue annually from this source. Latest complete figures show that in 1936 this rail revenue reached $450,732,000, from 3,595,000 automotive freight carloads. These cargoes consisted of motor vehicles, parts and tires, gasoline, iron and steel, coal and coke, crude petroleum, lubricating oil, lumber, road and fuel oil, crude rubber, asphalt for roads, paving brick, cement for roads, bridge, gravel, sand and stone for roads and miscellaneous, such as non-ferrous metals, paints and upholstery materials.

Finally, according to the latest Federal Census of Business statistics, one out of every five retail dollars spent in the United States comes from automotive purchases. Total retail purchases that year passed the $33,000,000,000 mark. Of this $6,574,364,000 was spent in retail automotive establishments, or 19.5 per cent.

Gateway to 11,000 Jobs

THE GREAT PLYMOUTH PLANT in Detroit is the largest automobile plant in the world under one roof, on one floor level. Engineers agree that its equipment and layout are unexcelled in the automotive industry.

Running at capacity, work is provided for 11,000 people—and, indirectly, for many thousands of other people in the hundreds of smaller factories making automobile parts and materials.

In the main Plymouth plant are seventeen miles of conveyors . . . power hoists and cranes . . . "roller-runs" . . . trucks . . . which do all the heavy lifting and moving. Great care is taken to provide the kind of working conditions that inspire men to say, "This is a good place to work." Men do better work when they feel that way.

Light, ventilation, cleanliness, orderly surroundings, fair treatment—all play their part along with modern tools and efficient machinery.

We believe that a good plant, good equipment and good working conditions are conducive to good workmanship . . . the kind of workmanship which makes every Plymouth a better built car. PLYMOUTH DIVISION OF CHRYSLER CORPORATION, DETROIT, MICHIGAN.

PLYMOUTH BUILDS GREAT CARS

World Turns to Automotive for Transportation Needs

Washington. — Much of the world beyond the seas depends upon the United States for motor vehicles and allied products and statistics of the Commerce Department show that last year, for the fifth consecutive time, our automotive exports rose above the preceding year.

Shipments abroad of all automotive products during 1937 attained a valuation of $360,168,528, a gain of 43 per cent over the $250,473,343 recorded during 1936. The most recent total was the fourth highest in the history of the industry, being exceeded only in the lush years of 1927, 1928 and 1929.

Foreign purchases of American passenger cars totaled 229,486 units having a valuation of $134,814,25, against 179,957 units valued at $103,024,254 in 1936, with purchases in each of the various price classes exceeding the former year's. The Union of South Africa and Australia again were the most important markets for automobiles made in this country, followed by Argentina, Belgium, Canada, Sweden, Mexico, United Kingdom, Brazil and Japan in that order.

Export purchases of trucks and buses last year totaled 165,710 units, worth $100,105,472, compared with 105,799 units, valued at $54,854,366, in 1936. Argentina was the chief outlet, advancing from seventh position in 1936, with Belgium, Japan, British India, Union of South Africa, Sweden, Australia and France as other leading purchasers. The foreign demand for trucks everywhere was decidedly improved over 1936, only bus chassis falling below that year's shipments.

The average unit export valuation of passenger cars and trucks last year was $587 and $604, compared with $578 and $518, respectively, in 1936.

Exports of miscellaneous automotive products amounted to $125,248,331, or 35 per cent above the 1936 total. Shipments in the various classifications of this group, with 1936 totals in parentheses, were as follows:

Parts for assembly, $53,421,722 ($41,365,369); parts for replacement, $44,213,786 ($31,438,987); accessories, $5,291,311 ($4,031,433); service appliances, $6,496,088 ($4,607,481) automobile engines, $9,044,018 ($5,659,048); trailers, $1,033,039 ($1,065,913).

How completely the world has been won over by American automotive products is shown by the fact that last year's $360,168,528 volume of sales abroad was 338 per cent above the total for 1932, only five years before. At that time the cargoes reached a value of only $82,185,100.

Automotive is Leader in Design for Buildings

(Continued from page 18)

Chevrolet, Dodge, Hudson, Lincoln, Lozier, Maxwell, Oakland, Olds, Paige, Studebaker, Willys, etc. The new principles of industrial architecture were adopted in all of these early plants. Although these principles of design were modified and developed during the intervening years in the construction of plants by the Chrysler Corporation, the General Motors Corporation, and at the Ford River Rouge Plant, nevertheless the Packard building, previously mentioned, was the forerunner of the modern automobile factory. It gave birth to a new form of architecture, which has influenced the design of factories constructed throughout the country since 1903. Indeed, the American factory buildings of today are used as examples for factories now being constructed throughout the world, and for all purposes.

But this is not the full story of the influence which the automotive industry has had on industrial architecture. The leaders of the industry recognized in the early days, and they do so even more to-day, that ideal working conditions and agreeable surroundings have a beneficial effect on the workers, which, though not measurable in dollars and cents, is nevertheless reflected in the quality and the quantity of the work performed. Accordingly, they raised the standard of the sanitary, heating, lighting and ventilating installations. They provided in their plants a better type of locker rooms, cafeterias and welfare departments. The slight extra cost of these improved working conditions was compensated by savings made in the structural design of the buildings. Motor manufacturers improved the appearance of their plants; they encouraged their architects to design buildings with more pleasing elevations.

Need Proper Grouping

They realized that an attractive, well finished factory could be built at a cost no greater than the cost of an unsightly, inefficient one, providing the architectural effects were obtained by means which involved no additional expenditure,—by proper outline and proportion of the structure "en masse"; by proper grouping of solids and voids; and by the skillful handling of building materials, instead of by the application of elaborate and costly ornamentation. It was made clear to the leaders of the industry that a well finished building, with pleasing appearance, resulted from brainwork rather than from delving into the pocketbook.

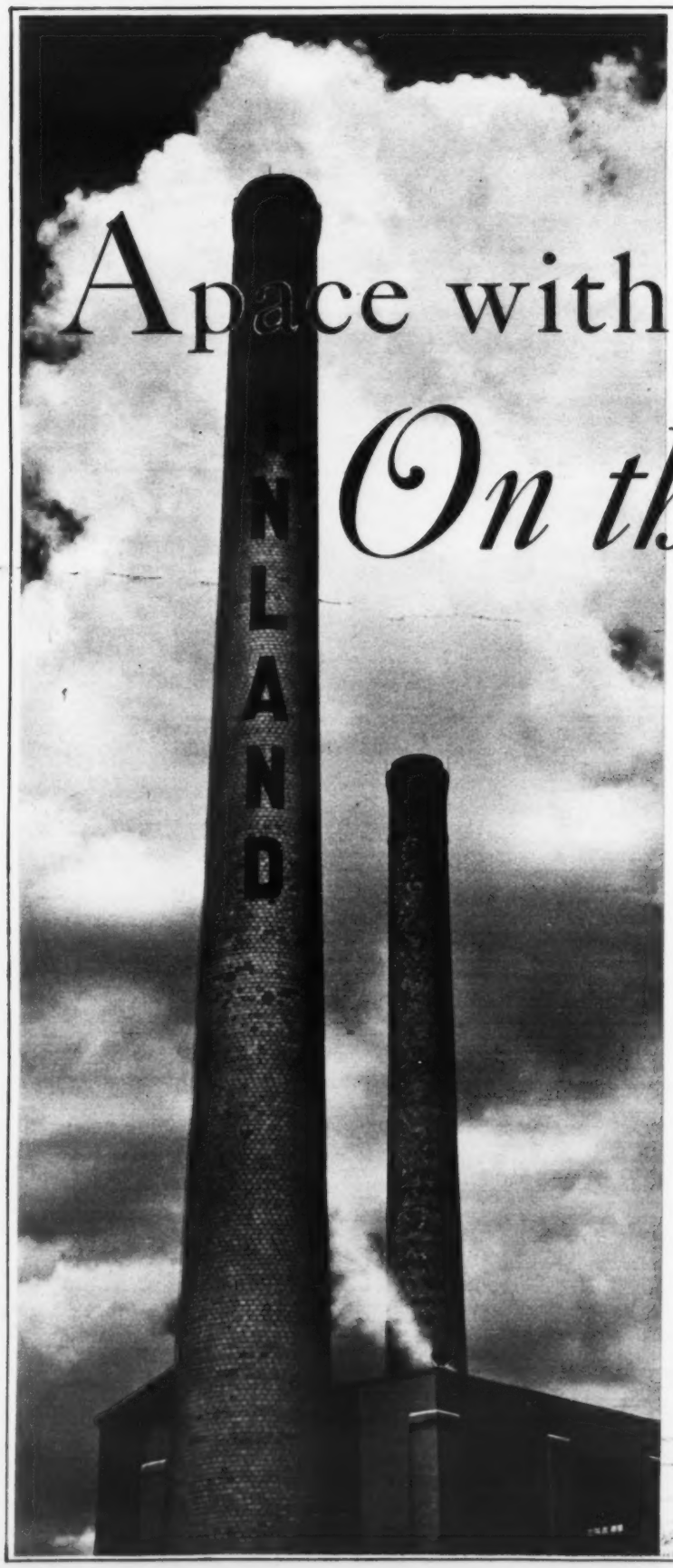
As a consequence many of the motor plants in this country are regarded as outstanding examples of good architecture in spite of the fact that their cost of construction compares most favorably with the cost of other types of industrial buildings.

The automotive industry has also made a great contribution to the architectural profession in providing a unique training field in the requirements of factory buildings. The development of industrial architecture, as a specialty, has been practically coincident with the development of the motor industry. Changing methods of production necessitated modifications in plant design. In the solution of the problems that arose from time to time, architects were given ample opportunity to exercise their ingenuity.

Efforts Are Inspiring

The efforts of the manufacturers of cars to provide their customers with the greatest possible value for the money spent inspired architects to produce buildings which would play their part in accomplishing the desired results. In serving the needs of the industry, architects have learned that while the exterior appearance of the factory is important, the careful planning of the interior for efficient production is even more important.

In serving the industry architects have developed the ability to prepare plans and specifications quickly, and to design efficient structures which can be constructed economically and expeditiously. The industry has taught the profession that the industrial architect must be not only a skilled designer, but he must also be a practical planner; he must be possessed of commonsense and sound business judgment.



Apace with America
On the Move

In step with the Automotive Industry, Inland completes 16 years of ever-widening service.

To keep apace with the trend and tempo of a nation on the move, Inland has increased each year its investment in man-power, machinery and research.

And today Inland faces the future confident in the promise of a great nation which refuses to stand still.

Inland Manufacturing Division

GENERAL MOTORS CORPORATION
DAYTON, OHIO

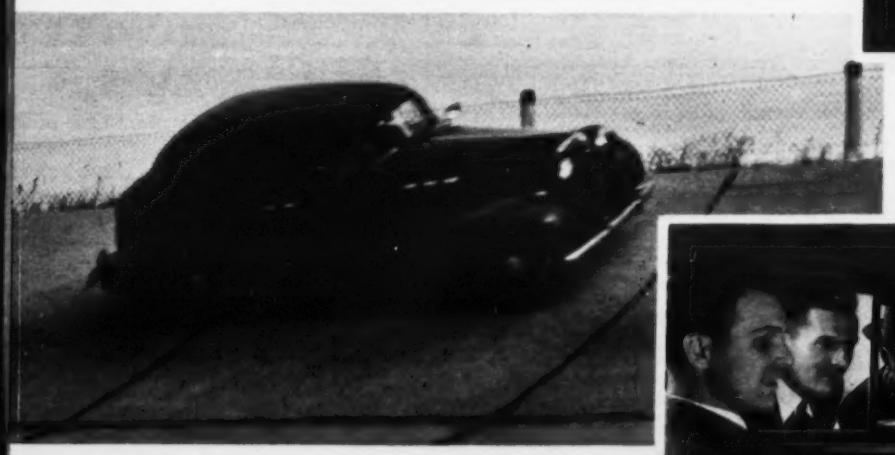
OLDSMOBILE
SETS THE PACE IN PROGRESS WITH THE
AUTOMATIC SAFETY TRANSMISSION!

New Engineering Advancement pioneers the way to easier, safer, more economical driving–brings fresh, new appeal to motoring!

OWNERS AND DEALERS alike point to the Automatic Safety Transmission—developed, proved and introduced by Oldsmobile—as the biggest forward step in automotive engineering in recent years. Because it puts new interest and new thrills in driving, it puts new impetus in sales. Back of the development of this significant advancement stand years of experimental and testing work, The Automatic Safety Transmission is an outstanding example of the automobile industry's inspiring march of progress . . . an example, too, of Oldsmobile's contributions to the advancement of America's greatest industry.

YEARS OF DEVELOPING AND TESTING

Oldsmobile's engineering staff spent more than five years in research and development work before the Automatic Safety Transmission was introduced to the motoring public. Many costly experimental models were built by hand and put through every conceivable test for efficiency, dependability, performance and operating economy.



PROVED ON THE PROVING GROUND

In advance of its introduction, Oldsmobile cars with Automatic Safety Transmission covered more than half a million miles on the General Motors Proving Ground. Winter and summer, in fair weather and foul, Oldsmobile test drivers proved the Automatic Safety Transmission thoroughly dependable under all driving conditions.

ENTHUSIASTICALLY RECEIVED BY THE PUBLIC

Oldsmobile's Automatic Safety Transmission won instant public acceptance from coast to coast when it was introduced nearly a year ago. In this feature, motorists found more than just a gear shifter. They found an aid to safe and easy driving that opened up a whole new world of motoring enjoyment.

NOW PROVED BY THOUSANDS OF OWNERS

In the final analysis, it's what owners say that counts. Thousands of owners have driven millions of miles in Oldsmobiles equipped with Automatic Safety Transmissions. From all parts of the country, letters pour into the Oldsmobile factory reporting the enthusiasm owners have for this new, simpler, more enjoyable kind of driving.

THE DRIVING SENSATION OF THE YEAR

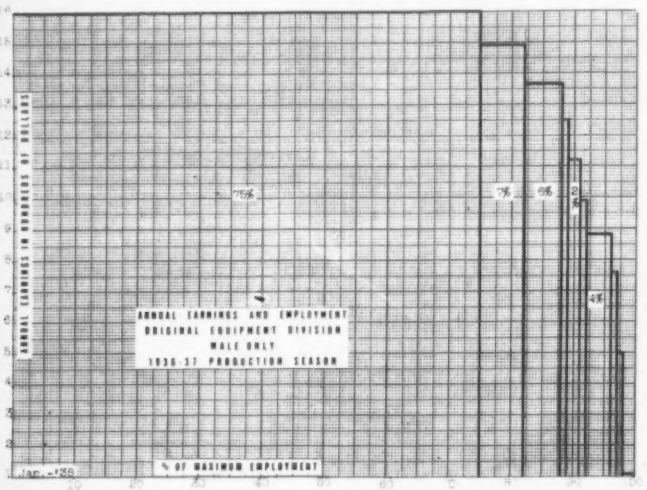
Wherever you travel, you will hear talk about Oldsmobile's Automatic Safety Transmission—because *it does* outmode old-fashioned driving—and because it has brought America a new thrill, and a new reason for buying automobiles.

Parts Pay Reached Peak in 1937

Number of Workers employed rose 26.8% above average for 1929; Seventy-five per cent of male workers earned above $1,600 for year.

THE year 1937 recorded a great many changes in the automotive parts and equipment industry—changes that involved the payment of the highest average hourly rate of pay ever recorded by Automotive Parts and Equipment Manufacturers Association for the industry; the largest number of employees ever working in the industry, and the highest average annual wage since 1929.

In making the following analyses, A. P. E. M. has used the figures supplied by 48 of the largest original equipment parts manufacturing plants in the country and all com-



That each of the majority of workers employed in automotive parts plants during 1937 received better than $1600 for his year's work is shown in the chart above. This chart also reveals that 75 per cent of the workers enjoyed maximum employment throughout the year.

pilations are based on these 48 identical plants.

Using the 1929 average employment figure for these plants as 100 per cent, or "normal," average employment for each year since figures have been compiled by A. P. E. M., show that employment for 1934 was 88 per cent of normal; 1935 was 96.4 per cent; 1936 was 105.1 per cent and 1937 was 126.8 per cent of normal. In other words, for every 100 persons gainfully employed in the parts industry during 1929, there were 126.8 persons in 1937.

The average hourly rate of pay for 1937 was 14.5 per cent greater than the average hourly rate for 1929 with an increase of 31.1 per cent in the real wage. Figures for 1929 show that the hourly rate of pay in the parts industry for that year was 69.7 cents per hour while December of 1937 showed an earned hourly rate for all factory employees (male and female and productive and non-productive) of 84.8 cents per hour, an increase over the 1929 average rate of 21.7 per cent. For the year 1934, the average hourly rate of pay was 85.8 per cent of 1929; 1935 was 93.8 per cent; 1936 was 97.1 per cent and the average for 1937 was 114.5 per cent. December of 1937 showed an increase in the average hourly rate of pay to all factory employees over January of 1937 of 17.9 per cent.

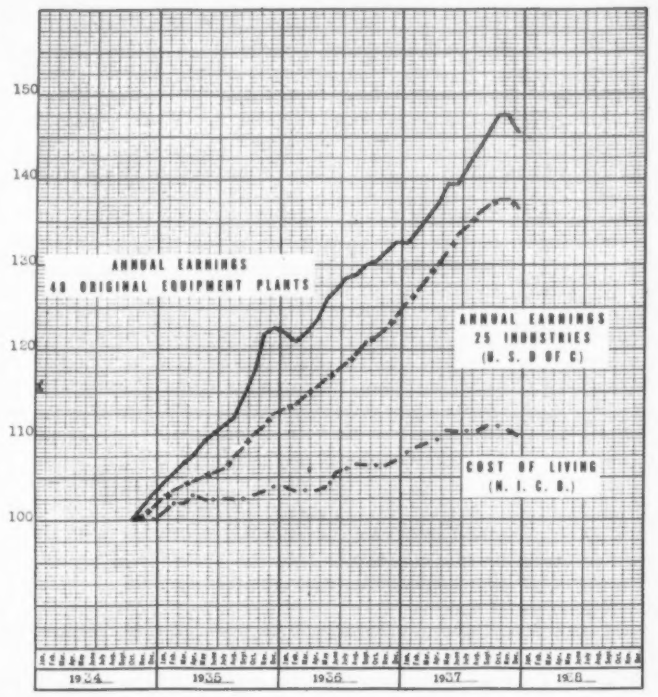
During the year ending in November of 1937, these 48 plants paid out a total of $126,828,000 dollars in factory wages only, as against a total of $83,815,000 for 1936; $79,121,000 for 1935 and $60,444,000 for 1934.

The average weekly earning for the year ending in November of 1937 for all factory employees (male and female and on a 52-week year basis) was the highest ever recorded by A. P. E. M. Using the average weekly earning figure for 1934 as 100 per cent, average weekly earnings increased 19.5 per cent in 1935; 30 per cent in 1936 and 45.6 per cent per week in 1937. The differential between the highest and the lowest earning period during 1937 was only 25.1 per cent and, to show the stabilization of income in the industry, there was only one period during the year when the earnings went below 90 per cent of the average weekly earning for the year and four periods when the earnings were less than the 100 per cent figure.

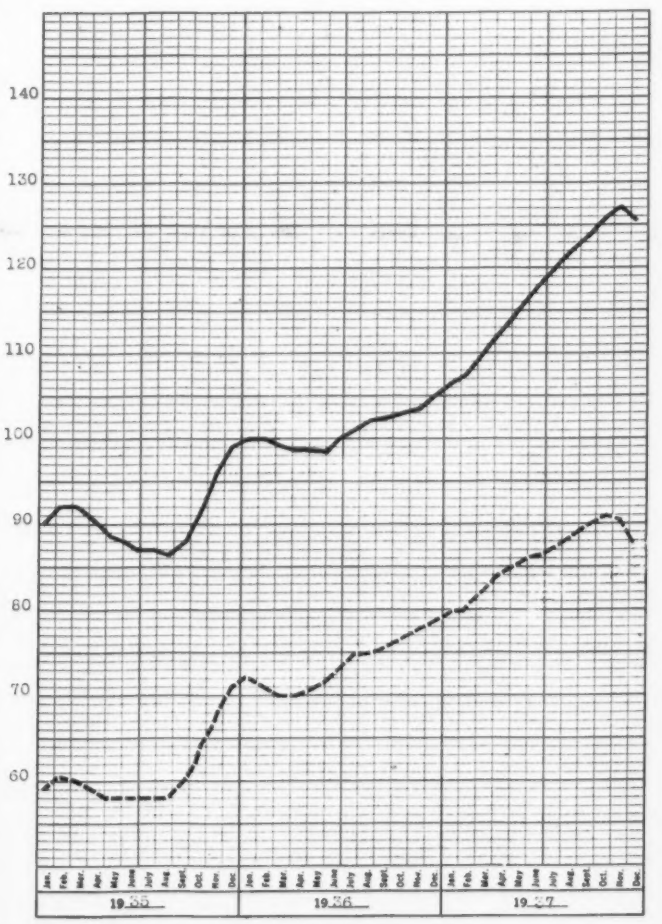
Annual earnings have increased steadily in the parts and equipment industry from October of 1934, the end of the first yearly period of recorded figures. Using the year ending in October of 1934 as 100 per cent, annual earnings increased 17.6 per cent in 1935; 30.5 per cent in 1936 and 47.3 per cent in 1937, while the cost of living as of October, 1937, had increased only 11.2 per cent over October of 1934.

These 48 plants gave more than 158,992,000 manhours of work to their employees during the year ending in November of 1937, 90.2 per cent of the manhours worked in 1929; 14.8 per cent more than were worked in 1936; 31.4 per cent more than in 1935 and 57.3 per cent more than were worked in 1934.

An analysis shows that 75 out of every 100 employees in these 48 plants had maximum employment. In the 48 plants, 75 per cent of all male employees had maximum employment and earned an average of $1600 per man; 82 per cent earned an average of $1490 or more and 89.4 per cent of all the employees averaged $1250 or more per year per man.



Average annual earnings in the automotive parts industry as compared with the average in 25 other industries is shown in the chart above. This chart also shows the rapid increase in earnings enjoyed by these workers in comparison with the increase in the cost of living.



Relation of employment to production is shown in the chart above. The solid line indicates the employment index based on 1929 as equal to 100 while the dotted line shows production using 1929 also as equal to 100. Thus in 1937 employment was 120 as compared with 1929's 100, while production never climbed above 91 per cent of 1929.

LOOKING FORWARD!

THE courage and foresight of the automotive industry *is proven.* Even with today's general apprehension this industry is *going ahead,* looking forward with renewed courage and determination.

The millions of dollars invested yesterday and today in plants and machinery means *more jobs and larger payrolls* for tomorrow!

★ ★ ★

THE CLEVELAND GRAPHITE
CLEVELAND BRONZE CO. DETROIT

Purchasers like the C.I.T. Budget Plan!

THE C.I.T. Budget Plan has been used by millions of responsible automobile purchasers. Sensible budget buyers the country over have relied upon the protection of this plan with its standard rates and terms to fit individual budget requirements. This broad foundation of customer good will means a great deal to you. When you feature the C. I. T. Budget Plan as your sales financing service, both you and your customers benefit.

From your own standpoint, here are some of the advantages in financing through C.I.T.

—Ample funds for all requirements.

—Tactful, on-the-spot credit investigation.

—Immediate purchase of acceptable paper by local office near you.

—Efficient, friendly collection service.

—C. I. T. service is national in scope and is not subject to local or regional disturbances.

C. I. T. is the world's largest independent sales financing institution, established in 1908, and serving dealers and purchasers everywhere through 184 local branch offices. Each branch is a self-contained, fully-functioning unit.

C.I.T.

Commercial Investment Trust Incorporated • C.I.T. Corporation, New York, Chicago, San Francisco • Universal Credit Company • Canadian Acceptance Corp. Limited • Commercial Factors Corporation • William Iselin & Co., Inc. Meinhard, Greeff & Co., Inc. • National Surety Corp. • Subsidiary companies of

COMMERCIAL INVESTMENT TRUST CORPORATION
ONE PARK AVENUE, NEW YORK CITY

Ford Builds Today...for Tomorrow

(Continued from page 6)

manufacturing methods. Nine 100-ton furnaces will be rebuilt.

The reconstruction program is being carried out under a progressive schedule, which will permit operation of the majority of the furnaces at all times. Two furnaces will be torn down and rebuilt at one time, while the balance will be kept in production.

Installation of additional equipment in the new cold finishing mill, including a 78-inch continuous pickler and 12 sets of three-bell-type bright anneal electric furnaces. Contracts for this new work have been let.

Power House Enlarged

The capacity of the main power house is also being increased again by the installation of a third 110,000 kilowatt turbo-generator.

In connection with the new battery of 61 coke ovens, supplementing the two already in service, the company has recently constructed two giant gas storage holders. One, of 10,000,000 cubic feet capacity, is the largest all-welded steel structure in the world. It will be used to store fuel gas produced in the coke ovens. The other, of 2,500,000 cubic feet capacity, will store blast furnace gas. Besides the two new 61-oven coke batteries, there is a propane gas station and control equipment, new compressors, mixing stations, booster pumps and much by-products equipment, as well at the dry-seal gas holders.

This new equipment makes available to the Rouge Plant from all sources 90,000,000 cu. ft. of 500 B.T.U. gas daily. The 10,000,000 cu. ft. gas holder, which can be seen towering above the surrounding buildings at the Rouge, is 225 feet high—the equivalent of an 18-story buildings. It is 128 feet in diameter. It will be used when coke oven gas is temporarily unavailable—to insure a steady flow of suitable gas to the mains at all times. A modern fuel gas distribution system was completed at the Rouge in the summer of 1937—a supervising system giving manual and automatic control of all major fuel gas outlets in the 1,096-acre plant, where 100,000,000 cu. ft. of gas are required daily.

Consumes 747,319 Tons

Some idea of the vastness of the Ford operations and what it means to the country to have them operate normally may be gained from the following: In the Detroit area alone the Ford Motor Co's consumption of electric power is annually well above 700,000,000 kilowatt hours. Fuel used for power and steam is the equivalent of 747,319 tons of coal—or enough to fill 19,000 railroad cars of 50-ton capacity. In the same period the company burns more than 50,000,000 gallons of fuel oil (in the Rouge and Lincoln Plants). Coke breeze the equivalent of approximately 50,000 tons of coal is consumed in the Rouge and Highland Park Plants. More than 43 billion cubic feet of blast furnace and coke oven gases are burned.

A new giant high pressure boiler recently was installed in the power plant at the Rouge. It is of the 5-drum water-tube type and produces 1,040,000 lbs. of steam an hour, which it generates for a new 110,000 kilowatt turbo-generator.

A two-and-one-half mile tunnel, 15 feet in diameter, supplies a half-million gallons of water a minute from the Detroit River to the Rouge power plant.

In February, 1937, a $500,000 power and service tunnel beneath the Rouge slip was completed. It is 70 feet underground, 620 feet long, with an outside diameter of 15 feet. With service elevators the cost was well over $600,000. Each of two shafts contains 1,500 tons of concrete and there are about 1,200 tons of cast iron segments in the tunnel proper.

In June, 1937, the company launched two new canal motor ships 300 ft. long by 42 ft. beam by 20 feet deep, for service between the Great Lakes and Atlantic Coast (via the New York State Barge Canal). These are the first freight carriers on the Great Lakes having no riveting in hulls and deck construction. They are welded throughout. They are driven by two 600-H.P. Deisel engines. Each has a crew of 18 and carries 2,000 V-8 engines, with axles and heavier parts necessary to assemble 2,000 Ford cars and trucks.

Ships Cover Seas

These are a striking addition to the fleet of some 40 Ford vessels—freighters carrying coal, sand, lumber and ore from the Great Lakes ports to the Rouge Plant; parts to various branches; others operating between branches on the Atlantic and the Pacific coasts, through the Panama Canal; others transporting knocked-down cars to South American branches; others operating between Dearborn and the Ford rubber plantations in Brazil.

Recently more than $3,000,000 of new grinding and polishing equipment was installed in the Rouge glass plant.

In November, 1937, two new 1,000-H.P. 250-ton Diesel electric locomotives, the latest development in the field of transportation, were put in service at the Rouge Plant to augment the fleet of steam and oil locomotives already in use there over the plant's 90-odd miles of railway track. This was to meet increasing traffic over the system.

Work In Progress

Plans for a half-million dollar expansion of the Ford tidewater branch assembly plant at Norfolk, Va., were announced by the company last July, to permit a peak of 250 more workers and increasing plant capacity by 50 cars daily to 400 cars a day. The addition is 520 feet long by 300 feet wide, includes a 400 foot concrete dock and doubles the size of the plant. Construction is still in progress.

In the fall of 1935, Ford entered the medium price car field with the Lincoln-Zephyr V-12, starting a new era in motor car design and construction. Despite the fact that the car was revolutionary in style, 15,500 Lincoln-Zephyrs were built and sold the first year. In the 1937 model year Lincoln-Zephyr sales doubled. The Lincoln factory, in Detroit, where Lincoln and Lincoln-Zephyr cars are produced, covers 52 acres, and is one of industry's most modern and well-equipped plants.

One of the many by-products of the Ford Motor Co. is the charcoal briquets produced in the Ford lumber mills in Northern Michigan. They are used by railroads in dining and refrigerator cars, in foundries, meat packing houses, copper refineries and other industries. An important new retail market for them is being found among campers and picnickers. They are produced at the company's modern $3,500,000 hardwood plant at Iron Mountain, where hardwood is distilled to obtain alcohol, resin and other industrial products. Normal daily production of the briquets is 125 tons.

Twelfth "Little" Plant

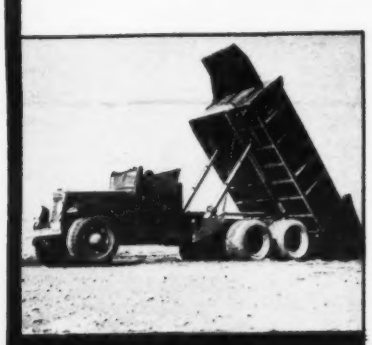
When work was begun on the new hydro-electric plant at Millford, Mich., in October, this was the twelfth of the little factories to be built by the company in rural Michigan as part of a program to form a closer union between the farm and the factory.

Other of the company's hydro-electric parts manufacturing plants, which employ from as few as 30 employes to 2,000 are: Dundee, Mich. (welding points and fixture parts); Flat Rock, Mich. (head, tail and dome lamps); Green Island, N. Y. (radiators, spring assemblies, wheel assemblies, bearings and sleeves for drive shaft and wheels);

(Continued on page 36)

GAR WOOD

CONTRIBUTES TO NATIONAL RECOVERY



HOIST and BODY DIVISION
Hoists and dump bodies for trucks of every size

ROAD MACHINERY DIVISION
Road machinery for building roads and moving earth

BOAT DIVISION
Motor boats and cruisers for the nation's waterways

GAR WOOD has explicit faith in the future of Americal Gar Wood Industries, Inc., has invested in new plants—new equipment—new machinery—new products—and released new energy in marketing its products throughout the nation. Here are some pertinent facts of progressive action:

Recent erection of modern *road-machinery* plant with complete new equipment; installation of new acetylene generating plant and piping of acetylene and oxygen gases throughout entire plant; enlarged assembly plant for *motor coach* division; installation of new equipment in *hoist* plant; expansion of *truck tank* division; increased production facilities for fabricating special truck bodies; new and larger quarters for *winch* division; installation of twin-air compressor and extension lines throughout plant; new equipment for layout and structural department; re-arranging of *boat* works for mass production; general expansion in *air conditioning* division to handle anticipated increased volume.

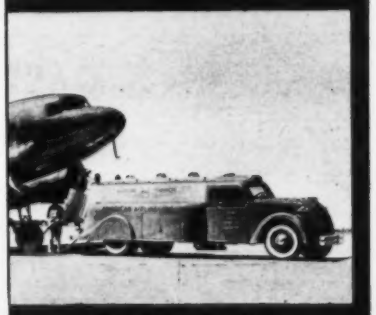
Gar Wood Industries, Inc., is composed of seven divisions: Hoist and Body—Road Machinery—Winch—Tank—Air Conditioning—Motor Coach—Motor Boat.

Gar Wood *believes* that Prosperous Industries Insure a Prosperous Nation!

GAR WOOD INDUSTRIES, INC.
DETROIT, MICHIGAN
Branches and Distributors in Principal Cities

MOTOR COACH DIVISION
Motor coaches for urban and suburban transportation

AIR CONDITIONING DIVISION
Heating and air conditioning for the nation's homes



TANK DIVISION
Truck and trailer tanks for gasoline, fuel oil and all liquids

WINCH DIVISION
Winches and cranes for loading and unloading materials

Safety Grows With Safety Glass

Automotive demand has created a new industry in the production of safety glass. Just an infant in 1932 the needs of motor car makers had increased 950 percent in 1937. Prices dropped as output rose.

Cellulose actetate plastic which form the binder between two sheets of plate glass in safety glass are cut to pattern by hand.

UNHEARD of by the average motorist a little more than a decade ago, and partial equipment on only a few cars in 1932—safety glass today is standard throughout on virtually all passenger models.

Perhaps no other single item used in motor car manufacture has ever won quicker or more universal acceptance from the motoring public. To the millions of passenger cars using laminated glass there must be added innumerable trucks and buses which are similarly equipped. Even the railroads, taking a page from the automobile man's notebook, are equipping their new high-speed trains with safety glass.

The rapidity with which safety glass has taken hold is shown by the fact that, to keep pace with motordom's requirements, the Libbey-Owens-Ford Glass Co. has had to step up production to the point where its safety glass output, already the largest in the world, was nine and one half times greater in 1937 than in 1932.

In accomplishing this 950 per cent production increase, the company has spent millions of dollars on new buildings and equipment and has given employment to thousands. For instance, during the 1932-1937 period, the number of L-O-F workers engaged in making glass for the automobile industry has been more than tripled — while employees of safety glass plants, where the glass is laminated, have seen their number multiplied nearly eight times.

This rise in employment has been reflected by a corresponding increase in payrolls, the latter having been upped 300 per cent.

During the period under discussion, Libbey-Owens-Ford employees working on automotive glass drew a total of $41,626,202 in wages and salaries.

During the period which is being reviewed, Libbey-Owens-Ford stepped up purchases of raw material and supplies more than 400 per cent—expenditures of this nature totalling more than fifty million dollars from 1932 to 1937 inclusive. Thus, since 1932, the Libbey-Owens-Ford Glass Co. has spent nearly one hundred million dollars on payrolls, expansions, equipment and materials—and much of these expenditures are directly attributable to the ever-increasing demand of the automobile industry for glass, glass, and more glass.

In the face of these expenditures, the price of safety glass has been greatly reduced. When you consider that 15 years ago it would have cost $300 to equip a single automobile with safety glass, it is particularly impressive that modern manufacturing methods enable motor car manufacturers today to install a far superior product without increasing the cost of the automobile to the purchaser.

Motor Wheel Seeks Answer to Needs of Tomorrow

FROM the inception of its corporate existence 18 years ago, Motor Wheel Corp. has proceeded on the theory that the automotive industry plays a most important part in the development and growth of the nation.

The company's willingness to discontinue old products and manufacture new things as fast as or even faster than the requirements of the automobile industry demanded is strikingly illustrated by its foresighted preparations for the transition from wood wheels to wire wheels and from wire wheels to the steel wheels of today.

Specifically, Motor Wheel has spent almost six million dollars in various improvements including new factory sites, new plants and new equipment in the past ten years, in anticipation of demands that were sure to come with the growth of the automotive industry.

In common with other units of the general automotive industry, Motor Wheel took its place in the front lines of the depression battle, and even in the dark days of 1932 and 1933 was laying plans for expansion of its manufacturing facilities, installation of new equipment and creation of many hundreds of additional jobs for those workers engaged in the business of putting the country on wheels.

Capital expenditures for property, manufacturing plants and equipment during these two years reaced a total of slightly over $250,000, and continued to show a decided annual increase each year until it reached a peak of almost a million and a quarter dollars in 1937. In that year the company increased its manufacturing facilities several thousand square feet through construction of a new hub shop, a centrifuse brake drum building and the plant now occupied by the Centrifugal Fusing Co., more commonly known as the foundry.

These plants were added to Motor Wheel's facilities so that the company could supply future needs of the automotive industry, and in view of that fact now enjoys a unique position among the parts plants of the country.

A NEW CAR

Lowest in price...Highest in mileage of any Sedan in America

RAPID TURNOVER—BIG VOLUME—FAST PROFIT

● A SENSATION right from the "go". The NEW WILLYS CLIPPER Family Sedan is *selling!* No wonder . . . there's NO OTHER CAR like it ... 'way DOWN in price ... 'way UP in gas mileage . . . and THREE TIMES AS MANY PROSPECTS.

To every ONE person buying a *new* low-priced car, there are TWO persons buying a *used car* in the upper-price bracket. Willys sells in BOTH markets. Your chances to sell are three times as great, as a Willys dealer.

14 feet long—built entirely of *rugged steel* —lots of room for five—big 13 cubic-foot luggage space—Willys offers important features found on $1000 cars. Owners report savings of $10 to $15 a month in maintenance and operation.

It takes very little money to stock the new Willys. . . Wire for the full money-making details. . . Some valuable territories are still available.

Willys-Overland Motors, Inc., Toledo, Ohio.

WILLYS CLIPPER $549

Half the Gas . . . twice the Style

. . . for the Family Sedan; Federal, State and local taxes and transportation charges from the Factory at Toledo, Ohio, not included.

Ford Builds Today... for Tomorrow

(Continued from page 34)

Hamilton, Ohio (Wheels, running boards, rear radius); Iron Mountain, Mich. (wood parts); Nankin Mills, Mich. (Engraving, fine tools); Newburg, Mich. (drills); Northville, Mich. (valves); Phenix, Mich. (cutouts, stop-lights, etc.); Plymouth, Mich. (taps); Twin City, Minn. (glass and assembly branch); Waterford, Mich. (gauges); Ypsilanti, Mich. (Generators, starters, starter switches). Of these, Ypsilanti, Northville, Dundee and Newburg plants were all completed in the last five years.

Plants Await Completion

Besides these, there are new plants at Saline and Tecumseh, Mich., at present used for the storage of soy beans, and undeveloped plants at many other points in lower Michigan—Brooklyn, Dexter, Manchester, Pinkney, Sharron Hollow, Southfield, Waterford, Milan, Hudson and Delhi. These will be completed and put in operation gradually as part of Ford's decentralization program. Some of these little plants—each in its lovely rural setting, with landscaped gardens beside a waterway, have been in operation more than 17 years. Northville, where all Ford valves are made, was the first of them—an ancient mill being remodeled for the purpose. Last year an entirely new, modern, air-conditioned building was erected by the company at Northville and is now in operation. It turns out 70,000 Ford valves in 16 hours.

The derivatives of soy beans —varnishes, binder in foundry, molded plastic parts, etc.—are so much a standard part of the Ford industry today that in Michigan alone the company grows 8,000 acres of the soy beans annually on Ford property and contracts for the output of 12,000 acres in addition. A modern soy-bean extraction plant is one of the new buildings at the Rouge and plastic moulding machinery occupies considerable space in the new glass plant there. Ford has cooperated closely for years with the Farm Chemurgic Council, an organization seeking new uses for farm products in industry.

Exhibiting at Fairs

Beginning with the "Century of Progress" in 1934, the Ford Motor Company has spent many millions of dollars on "world fair" exhibits and buildings, having important buildings and exhibits there, at San Diego and Dallas, as well as holding, in January, 1937, the largest industrial exposition ever undertaken by any national manufacturer—the Ford Florida Exposition, held at Miami. Next year Ford will be represented with magnificent buildings and exhibits at the New York and San Francisco fairs.

It was at the Chicago "Century of Progress" that the Detroit Symphony Orchestra began broadcasting music under the auspices of the Ford Motor Company. The connection has existed ever since, as the Ford orchestra, heard every Sunday evening through the Columbia Broadcasting System's coast-to-coast network of radio stations, is made up of the personnel of the famous Detroit band. At the San Diego Exposition, most of the important symphony orchestras of the west were heard under the patronage of the Ford Motor Company. The names of the "greats" that have appeared on the Sunday Evening Hour programs as conductors and guest artists constitute a veritable "Who's Who in Music" and thousands of letters from listeners in all parts of the country—and, indeed, the world, since the broadcasts were begun, attest not only the popularity of the program but the gratitude of all sorts of people to the Fords for making fine music available to a great unseen audience. There is no advertising—no "sales talks" on these programs—and the letters of the listeners indicate their gratitude for that, too.

The company and its dealers have also enabled lovers of lighter sorts of music and entertainment to hear Waring and his Pennsylvanians, Jose Menzanares and his South Americans, and Al Pearce and his "gang," and when Detroit's "Tigers" won the American League pennant, Ford sponsored the broadcasting of the World Series baseball games.

All Types Employed

All the major avenues of advertising are used by the Ford Motor company, whose appropriations for this purpose run into several millions of dollars annually — radio, newspapers, magazines, billboards, trade journals, and a great variety of booklets and folders, facts books, almanacs and others, is prepared for distribution by mail or "handout."

In 1937 there were 659,515 railroad cars interchanged at all the branches and manufacturing plants of the company. Material shipped by truck (not including built-up automobiles) amounted to 2,388,173,461 pounds. 689,702 automobiles were handled by truck; 163,643 by driveaway, 238,901 by rail and 26,101 by boat. Transportation charges paid direct (not including transportation charges by vendors and charged to the company on invoice) amounted to more than $40,000,000.

Rotunda as Gateway

At the conclusion of the second year of the Century of Progress, the famous Ford Rotunda, which had been one of the outstanding landmarks of Chicago during the fair years, was brought to Dearborn and—vastly improved and beautified—was erected there in permanent form — just across the way from the company's Administration Building, where it serves as a "gateway" for visitors to the Rouge Plant. The Rotunda has more than a million visitors a year—sometimes more than 30,000 in a single day, to see the handsome photomurals, the revolving "Ford World," and other fascinating displays, such as the relief maps and diaoramas graphically illustrating the processes of Ford manufacture and the sources of the materials from all parts of the world that go into the making of Ford motor cars and trucks.

Miscellaneous Items of Interest

The Rotunda is lighted by 11,894 lamps.

The Medical Staff at the Rouge Plant's Emergency Hospital, and its first aid stations in every building, includes more than 125 physicians, surgeons, dentists, chemists, technicians, first-aid men, assistants.

The Rouge Laundry provides the workers with 130,000 sterilized towels a day.

More than 2,000,000 lbs. of cotton are required yearly to manufacture safety glass for Ford cars and trucks.

5,000 men at the Rouge plant are required merely to keep it clean.

Vessels of the Ford fleet unload as much as 850,000 tons of iron ore and 1,150,000 tons of coal at the Rouge bins in a single season.

A shipping box factory at the Rouge employs 300 men, who make 40 different kinds of containers. The daily output is 9,000 units.

Peak electric power demanded at the Rouge Plant is 155,000 kilowatts—enough electric power to serve a city of 3,500,000 population.

There are more than 1500 different safety devices in the Rouge Plant, which are constantly being improved and replaced.

Ford cars are manufactured

(Continued on page 42)

BORN AND BRED
in Old Kentucky

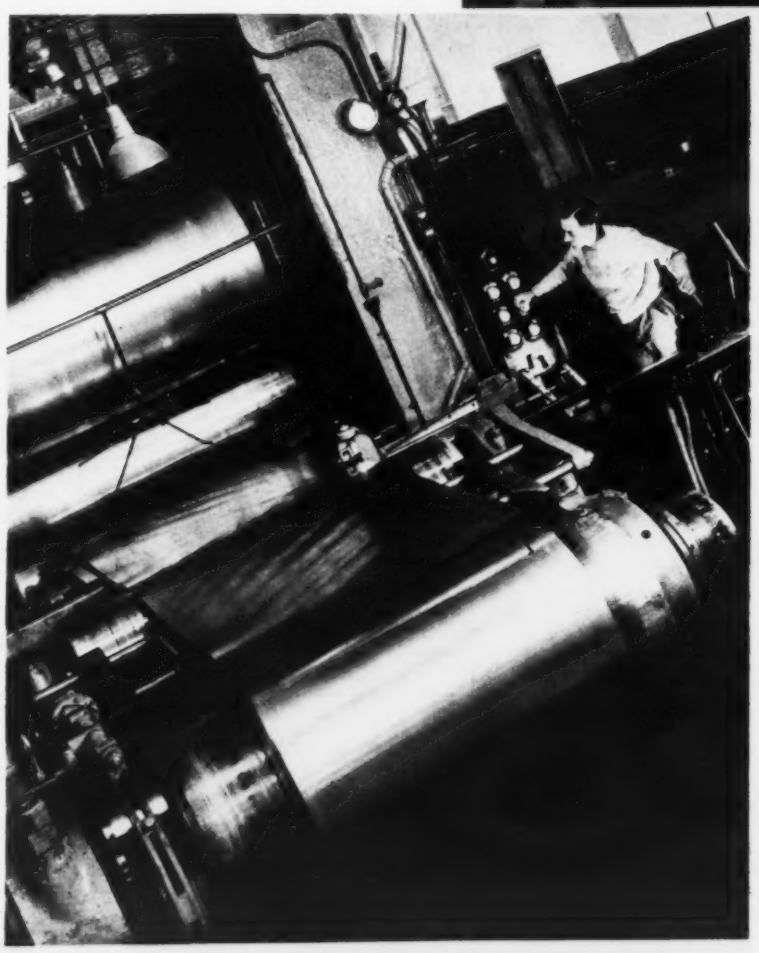
IT WAS at the turn of the 1920's and the automotive industry was gathering momentum. But it needed *more* and *better* sheet steel. How? Where? Those were the obsessing questions.

Even for several years before that time an Armco engineer had been burning the midnight oil in his quest for the elusive answers. Behind him were no guiding precedents — only the will to do and the research experience of a pioneer steel producer. Months were to melt into years before the answers came.

Then in 1923 the news was flashed that electrified the world of automobiles and steel. The impossible had been done, and the Armco mills in Ashand, Kentucky, became a mecca for thousands who could scarcely believe their eyes.

The long-awaited process of rolling sheet steel continuously was born! The automotive industry was fairly on its way to its brightest era of achievement!

Continuous sheet rolling is almost an old story now. The quality of steel is tremendously improved and there is no scarcity. Yet the challenge remains to Armco: to sense the needs of the automotive industry and to meet those needs in the fullest possible way. Armco marches ahead with automobiles! The American Rolling Mill Company, Executive Offices, 1671 Curtis Street, Middletown, O.



Above: The old way of rolling sheet steel —laborious, costly, not always uniform, and back-breaking.

Left: The new way of rolling sheet steel by the Armco-invented process—the way that revolutionized two great industries.

THE AMERICAN ROLLING MILL COMPANY
1671 CURTIS STREET • MIDDLETOWN, OHIO

Chrysler Backs Confidence With Cold Cash

(Continued from Page 8)

What activities of this sort mean to the country as a whole may be seen in the fact that during the years since 1932 the corporation has employed an average of 58,360 workers annually and its yearly purchases of materials, machinery, supplies and real estate averaged $342,261,738. Among the 58,360 employees was divided an average yearly payroll of $94,385,829. Its annual tax bill averaged $24,644,398 or just about one-quarter of its payments to workers

Expansion Program

That the corporation lost none of its confidence in its ability to get a growing share of the existing markets and its fair share of anticipated broader markets in the future as a result of the 1929 to 1932 depression is perhaps best reflected in its expansion operation since that time. Even today several projects of this sort are still in the process of construction which is concrete evidence that the corporation still retains its faith in the future and is preparing now to take its place among the leaders of the column in our eventual march back to prosperity.

These expansion and improvement activities can best be summarized by quoting from the annual reports of the corporation from 1933 to the present. The reports dated for the year as shown but covering activities during the previous period are as follows:

1933

"All through the depression this corporation has increased its share of the total automobile business, both here and abroad. Engineering research has continued to improve the quality of the cars produced. Manufacturing facilities have been developed to keep pace with the progress of the times Sales efforts have been intensified and more intelligently and more effectively conducted. Parts depots are being established throughout the United States to furnish more outlets for, and a wider distribution of, service parts, enabling dealers to render more efficient and prompt service to the owners of Chrysler-built cars."

Improve Service

1934

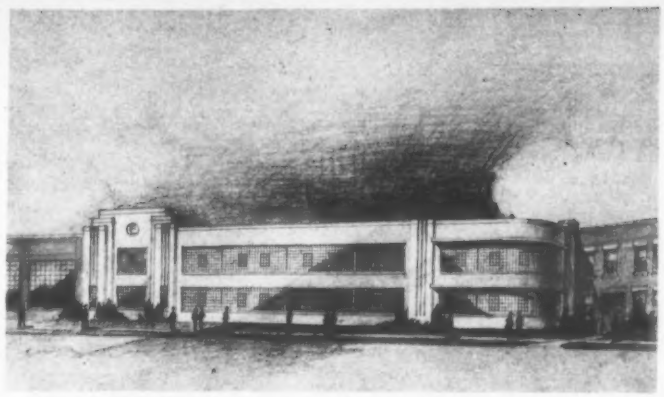
"The corporation has also taken a noteworthy step forward in providing increased and improved facilities for the service of Chrysler Motors cars and trucks in the hands of their owners. As part of this program, thirteen parts depots have been established at strategic points throughout the country in order to enable the owners of Plymouth, Dodge, DeSoto and Chrysler passenger cars and Dodge commercial vehicles, wherever located, to obtain through the dealer organization more prompt and efficient service than ever before. These depots are now operating in the following cities:

Atlanta, Ga.
Boston, Mass.
Chicago, Ill.
Dallas, Tex.
Detroit, Mich.
Kansas City, Mo.
Los Angeles, Calif.
Minneapolis, Minn.
Seattle Wash.
New York, N. Y.
Philadelphia, Pa.
Pittsburgh, Penna.
St. Louis, Mo.

"Attention is invited to the recent announcement by the Temperature Corporation of the "Airtemp Conditioner." This is a Chrysler product, and the result of several years of research and development work in the Engineering Department. The growth of public interest in air conditioning is little short of amazing, and it is felt that this field presents interesting possibilities for the profitable diversification of the corporation's manufacturing activities. "Airtemp Conditioner" has been adopted as a trade name for the product, and suitable arrangements for distribution on a national scale have been made with the Temperature Corporation of New York, an independent company with outside capital organized specifically to devote itself exclusively to merchandising it."

1935

"During the year, the corporation entered the air-conditioning field by introducing the Air Temp Conditioner, a product manufactured by the Chrysler Corporation. It is believed the air conditioning of homes, as well as of office, factory, and other buildings, offers a great potential field for further development."



Eaton Manufacturing Co., producer of axles, springs, valves, bumpers, stampings and other automobile and truck parts, spent over $3,000,000 in the past four years in plant improvements. Expenditures of $748,666 were made in renovation of buildings and construction while $2,258,648 was invested in new equipment. The engineering and research building, Detroit, (above) was complete late in 1937.

1936

"Additions to properties, plants and equipment during the year 1935 amounted to $11,387,671.80 and necessitated additions to and rearrangements of existing facilities to provide for additional output. To meet increased demand for Plymouth cars, the corporation reopened its Evansville, Ind., plant, formerly used to produce trucks, for exclusive Plymouth production; and increased the productive capacity of its Plymouth plant at Detroit. Truck building facilities were enlarged in keeping with the corporation's policy of stabilizing production and employment as much as possible. Additional storage facilities also were provided for banks of parts and sub-assemblies manufactured in advance of final car assembly."

1937

"Gross additions to property, plant and equipment during the year amounted to $21,650,503.99 and included, among other items, the opening of a new DeSoto factory, the building of a large modern press plant, the re-opening of the corporation's plant in Dayton, O., for the use of Airtemp, Inc., in manufacturing air conditioning equipment, and providing facilities at Marysville, Mich., for the corporation's service parts business.

"During the year, the corporation increased its wage rates and continued to pay wage rates higher than the average in the automobile industry, which, itself, is one of the highest wage-rate industries in the country.

(Continued on Page 39)

Let's Go, America!

★ No obstacle to progress since the turn of this century has ever been so great that it could not be hurdled by the ingenuity, resourcefulness and inspiration of the American automotive industry.

Back in 1933 when things looked darkest, never-say-die automotive leaders showed the way to new avenues of national recovery.

Again the automobile industry is on the move with an extensive program of building expansion and increased car production, designed to have the whole country singing "Good times are here again".

Goodrich and the automobile industry have "gone places and done things" together many times in the past two decades. And Goodrich has kept pace with the swift tempo set by motor manufacturers. When faster cars were built Goodrich created tires for them. When safety problems arose, Goodrich responded.

More than 180 rubber parts are now used in modern automobiles.

Goodrich is proud of the part it has played in the advancement of the motor car industry. Goodrich is proud of its ability to serve this industry in its present fight to move forward. Goodrich and the automobile industry will never sell the country short. *Let's go, America.*

The B. F. Goodrich Company

AKRON, OHIO LOS ANGELES, CALIF.

GM Plows Back $225,000,000 In Tomorrow's America

(Continued from page 11)

tically possible, but always providing that the fundamental objective toward which industry should move the lowest possible cost of goods and services, is not penalized."

Expansion programs during the past few years have been in exact accordance with that policy. Perhaps, one of the most outstanding developments in the past year was the corporation's entry into the diesel engine field. This operation entailed erection of new plants at LaGrange, Ill., and Detroit, Mich., as well as rearrangement and additions to plants already owned at Cleveland, O.

Twenty-two New Plants

While this move was, perhaps, one of the most spectacular because of the fact that it placed the corporation in an entire new line of development, it is a mere drop in the bucket when compared with other efforts during the past five years. In that period the corporation built or acquired 22 new plants and at present has six plants still under construction.

Ten of the 28 plants are in cities which have become centers of General Motors operations for the first time, and are benefitting from the added payrolls of a new industry. Operations are now being carried on in 15 states and there is not a major community in the country which does not benefit from the sales and service activities of the corporation.

To summarize some of the expansion projects the corporation has initiated since 1933 in addition to the diesel plants are as follows:

Expansion of the Buick, Oldsmobile and Pontiac production facilities was responsible for two other large new plants built by General Motors. Early in January, 1936, work started on an assembly plant at Southgate, Calif. This modern plant, 560 feet wide and 800 feet long, was dedicated in the early summer of the same year. It has a capacity of 80,000 units a year and serves the west coast markets for those three cars.

Divisions Expand

Late in August, 1936, an even larger plant to assemble Buicks, Oldsmobiles and Pontiacs was started at Linden, N. J. The main plant is 680 feet wide and 1,080 feet long, which was officially dedicated in May, 1937, and today is regarded as one of the finest automobile assembly plants in the world.

While these two plants were under construction, expansion of the "home" plants of these three divisions was under way in Michigan. The Buick division at Flint, was adding a new transmission plant, new pressed metal shop, new loading docks, as well as expanding its foundry and many other departments.

The Pontiac division at Pontiac was re-equipping an axle plant and a foundry, as well as adding a new factory administration building and a school for the training of apprentices.

The Oldsmobile division at Lansing was adding a new engineering building, a new axle and motor plant, motor and sheet metal storage buildings, a sizeable driveaway building, and taking over additional property vacated by the Fisher Body division for warehouse and storage purposes.

Some of the most important expansions in the five year period have been made by the Chevrolet division. In 1935, Chevrolet added its 10th assembly plant in the country with the opening of a modern new plant at Baltimore.

The same year saw Chevrolet expand its transmission manufacturing operations to Muncie, Ind., and Saginaw, Mich. Sizeable additions to industrial property were acquired in both cities to meet increased demand for Chevrolet cars and trucks.

In 1937 Chevrolet began construction of a new manufacturing plant in Buffalo.

Chevrolet assembly plants in St. Louis, Tarrytown, Kansas City and Oakland have been expanded, the old Durant plant in the latter city being purchased for truck assembly purposes. At Indianapolis, Chevrolet added a large unit to its commercial body building operations, which was dedicated with appropriate civic ceremonies in 1936.

Aviation Engines

The same year, the Allison division of General Motors in Indianapolis built another plant to meet the need for increased experimental and manufacturing activities on liquid cooled aviation engines.

Anderson and Kokomo, Ind., were also sites of large expansion programs of General Motors. The Delco Remy division at Anderson last year completed a new plant addition, and in 1936 additions to the Guide Lamp division in the same city were completed.

In April, 1936, General Motors announced the formation of the Delco Radio division at Kokomo with the purchase of the Crosley Radio plant. In 1937, another plant was added to this property, with resultant increase in employment.

Coast-to-coast expansion of the Fisher Body division with the addition of several new plants has gone steadily forward during the five year period. In December, 1936, the Grand Rapids Stamping plant was dedicated with a huge civic celebration. This modern plant had 400,000 square feet of floor space when it was dedicated, and has since been expanded 42,000 square feet with a new press metal shop. It produces stampings for Chevrolet cars.

Fisher Body Builds

In 1937, construction of a new plant was started for an eastern manufacturing plant for Ternstedt at Trenton, N. J. This plant is still under construction. It will contain 900,000 square feet and will make body hardware to serve eastern assembly plants of General Motors.

Large additions to Fisher plants have also been made at Flint and Cleveland during 1937. The Flint plant, supplying body stampings for Buick cars, was increased by the addition of a press room and die shop having an area of 170,000 square feet. At Cleveland, a new press metal shop was put in service early this year.

Fisher Body also acquired the old Durant plant in Lansing to increase its capacity for making bodies for Oldsmobiles, a plant that has a floor area of 610,000 square feet. This division also entered Baltimore in 1935 to make bodies for the new Chevrolet plant, and has made extensive additions to several other assembly plants throughout the country that operate jointly with Chevrolet.

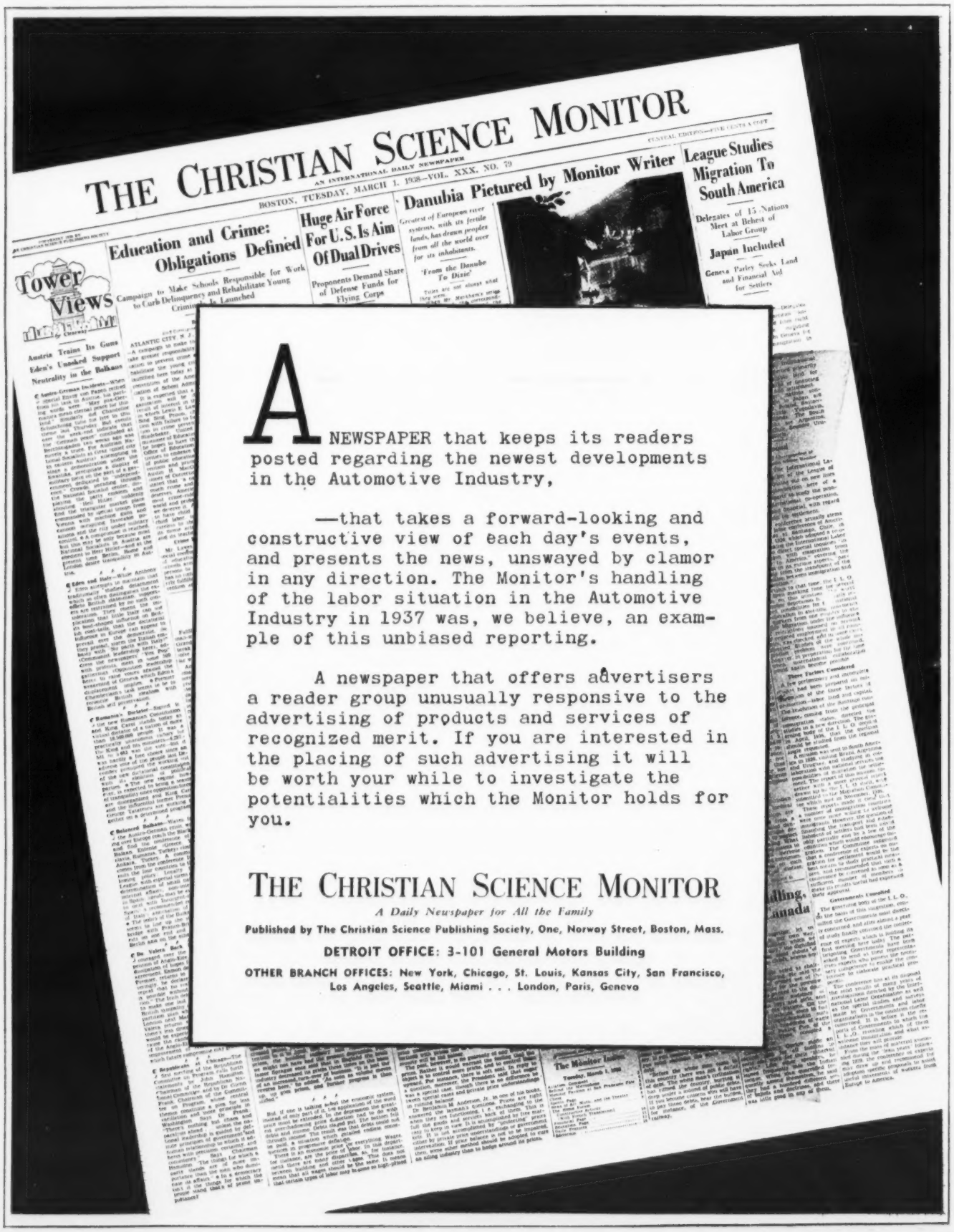
In 1936 Fisher Body also acquired property at Ionia, Mich., for a trim shop to make cushions and interior trim in bodies for Chevrolet cars.

The entrance of the Frigidaire division into new fields of household appliances, including electric ranges, and the Delco-Frigidaire Conditioning division into air conditioning units and coal stokers has brought about a major expansion of plant property in Dayton and Moraine City, Ohio.

The largest structure, at Moraine City, started in June, 1937, has 120,000 square feet of floor space.

Dayton also has been the scene of other major expansion programs of General Motors, the Moraine Products division

(Continued on page 41)


THE CHRISTIAN SCIENCE MONITOR
AN INTERNATIONAL DAILY NEWSPAPER
BOSTON, TUESDAY, MARCH 1, 1938—VOL. XXX, NO. 79
Tower Views
Education and Crime: Obligations Defined
Huge Air Force For U. S. Is Aim Of Dual Drives
Danubia Pictured by Monitor Writer
League Studies Migration To South America
Japan Included
A NEWSPAPER that keeps its readers posted regarding the newest developments in the Automotive Industry,
—that takes a forward-looking and constructive view of each day's events, and presents the news, unswayed by clamor in any direction. The Monitor's handling of the labor situation in the Automotive Industry in 1937 was, we believe, an example of this unbiased reporting.
A newspaper that offers advertisers a reader group unusually responsive to the advertising of products and services of recognized merit. If you are interested in the placing of such advertising it will be worth your while to investigate the potentialities which the Monitor holds for you.
THE CHRISTIAN SCIENCE MONITOR
A Daily Newspaper for All the Family
Published by The Christian Science Publishing Society, One, Norway Street, Boston, Mass.
DETROIT OFFICE: 3-101 General Motors Building
OTHER BRANCH OFFICES: New York, Chicago, St. Louis, Kansas City, San Francisco, Los Angeles, Seattle, Miami . . . London, Paris, Geneva

Chrysler Backs Confidence With Cold Cash

(Continued from Page 37)

The wage rates now being paid employees are the highest in the history of the corporation."

1938

"The corporation spent $21,915,352.07 for additions to property, plant and equipment in 1937, including among other items; improved production facilities at all plants; a new building in Canada to machine and assemble six-cylinder motors; purchase and equipment of a transmission plant at Kokomo, Ind., and the purchase and improvement of a site for a new truck plant at Detroit."

Many of the projects mentioned in the 1938 report are still under construction and are being carried forward at the present time. Some idea of the magnitude of Chrysler operations in relation to other industries may be gleaned from the following breakdown of materials used in building Chrysler Corp. products. It is because of the importance to other industries of the corporation and its fellow car makers that Automotive Daily News is publishing these facts in an effort to arouse the nation to support the efforts of the leaders in this field to get back to normal,—which means prosperity for all.

Vendors Gain

In 1936 Chrysler Corporation paid to vendors of materials and supplies more than $420,000,000, nearly twice as much as in 1929. Nearly $13,000,000 was paid for transporting them to its plants and approximately $46,600,000 was paid for outbound transportation charges.

In 1936 the railroads moved more than 25,000 full carloads of freight into Chrysler plants, and moved out 127,484 full carloads.

More than 8,300,000 pounds of less-than-carload freight moved in, and 4,053,633 pounds moved out by rail. Trucks brought in 294,257,331 pounds of freight and hauled away 34,567,000 pounds.

Forwarding companies handled 30,000,000 pounds of inbound freight and 40,000,000 pounds of outbound.

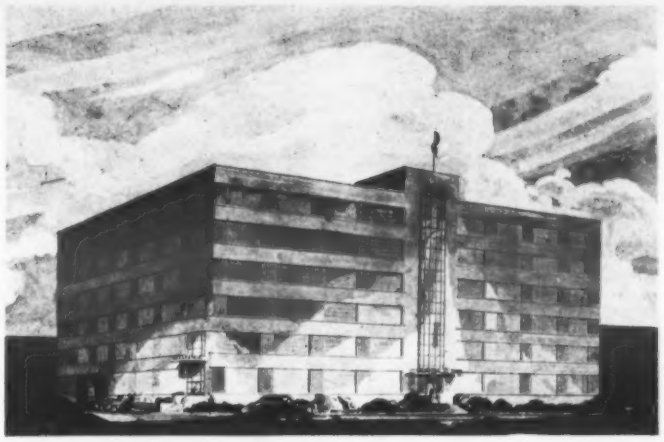
Raw material purchases by Chrysler Corporation give some idea of the economic ramifications of automobile making and its consequences in employment. For example: Principal raw and fabricated materials used in 1937 models of Chrysler-built cars and trucks were as follows:

Raw Material Purchases for 1937 Models Aids Many Industries

Steel—Tons	1,271,228
Copper—Lbs.	34,860,000
Tin—Lbs.	4,178,900
Lead—Lbs.	36,254,400
Coal—Tons	411,652
Pig Iron—Gross Tons	76,300
Rubber—Lbs.	117,969,400
Aluminum—Lbs.	13,944,000
Zinc—Lbs.	28,155,613
Oils, Thinners, Fuel Oils, Etc.—Gals.	18,873,000
Greases—Lbs.	8,255,000
Wool, Mohair, Hair—Lbs.	6,974,000
Lumber—Bd. Ft.	40,500,000
Cotton—Bales	104,086
Burlap, Rayon—Lbs.	20,198,000
Leather—Sq. Ft.	1,200,000

Fabricated Materials — Includes Some of Raw Materials Just Mentioned

	1937 Model
Glass—Sq. Ft.	45,540,000
Tires	5,687,000
Batteries	1,162,000
Die Castings—Lbs.	25,874,780
Paper—Lbs.	33,500,000
Paint, Enamel & Lacquer—Gal.	4,630,675
Upholstery Fabrics—Yards	12,059,000
Castings—Tons	332,913



Contracts will be awarded about May 1 for the construction of a new $700,000 General Electric building at Los Angeles. The new building is designed to contain six stories and basement, three stories of which are planned to be completed for occupancy by September. It will house the offices, warehouse, and display rooms of the General Electric Co., G-E Supply Corp., G-E Contracts Corp. and G-E Merchandise Department.

sas City, Philadelphia, Pittsburgh, and New York—subsidiaries of Chrysler Corporation own and operate special factory sales branches. They are useful not only to distribute and sell cars, but also they act as continual laboratories of research in sales experience and sales practices.

Chrysler Motor Parts Corporation operates in Detroit, the largest motor parts plant in the world, supplemented by 13 parts depots at strategic points throughout the United States and two depots in foreign countries. Through these depots the aim is to enable car and truck owners to secure practically every part needed for any Chrysler-built vehicle in operation.

In marketing its passenger cars and trucks in the United States and 100 foreign countries, Chrysler Corporation operates through more than 19,000 distributors and dealers. Some dealers sell Chrysler cars, some DeSotos, and the rest Dodge passenger cars and Dodge trucks. Plymouth passenger cars and Plymouth commercial cars are sold by Dodge, DeSoto and Chrysler dealers in the United States, each dealer, therefore, selling at least two lines of cars in two price classes. In foreign countries dealers may sell a different combination of cars and trucks depending on the market.

Now MILLIONS of People Are Wealthy

THERE were only seven automobiles in John Brown's home town 30 years ago, when John was born. A few rich men owned them, and the cars—such as they were—cost well over $2000.

Today, for much less than $1000, John has a car that is far better than anyone owned even a decade ago. In fact, for what a leading car cost in 1907, John can now have, besides a better car, other things—automatic house heating, a radio, golf clubs. Mrs. Brown can have an electric refrigerator, a fur coat, and a lot of new dresses.

Today in America three out of four families have cars better than the best a few years ago. Their homes are more cheerful with improved electric light, which also costs less. Their house furnishings are more attractive and comfortable, yet less expensive.

They have many servants at little cost, for electricity does the tedious tasks about the house.

This *real* wealth has come to millions of people because industry has learned, to build products that are worth more but cost less. Engineers and scientists have found ways to give the public more for its money—more goods for more people at less cost.

In this progress G-E research and engineering have ever been in the forefront. And still, in the Research Laboratory, in Schenectady, General Electric scientists continue the search for new knowledge from which come savings, new industries, increased employment, benefits which bring to millions of John Browns real wealth unknown a generation ago.

G-E research has saved the public from ten to one hundred dollars for every dollar it has earned for General Electric

90-1 Y

GENERAL ELECTRIC

LISTEN TO THE HOUR OF CHARM MONDAY EVENINGS, N B C RED NETWORK

Packard Broadens Markets

IN the six years from 1932 to 1937, inclusive, production of the Packard Motor Car Co. increased more than 1300 per cent. This tells the story of the leading part Packard played in the automobile industry's great and successful efforts to lift the country out of its slump and back onto the road of better business.

Such a record didn't just happen. It could not have been accomplished by just sitting down to wait and hope for business to get better. It was the result of the most careful and studied planning, of courage and of aggressive, untiring effort.

During this six year period rising production of Packard cars not only was accompanied by greatly increased employment in the Packard factories but thousands of added days of labor were created in scores of other industries.

Quantities of new machines were required to produce such a tremendous increase in Packard's output. Vastly greater volume of materials was necessary. Selling and servicing of the greatly multiplied number of new cars spread employment still further throughout the nation.

Packard's program resulted from a comprehensive plan aimed at broadening its market. It also had as one of its principal objectives, a new and more important place for the company in the industry.

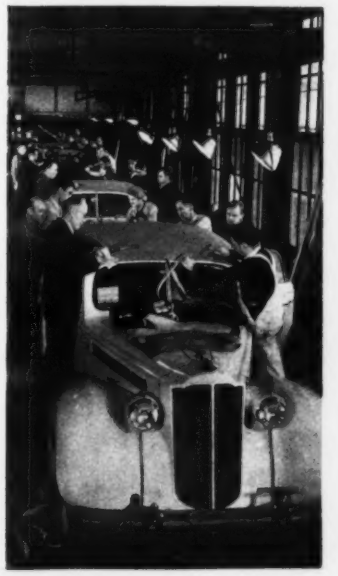
Packard had been producing cars in the so-called high priced field, that is, cars selling for more than $2,000. This division was more affected by the depression than the lower priced groups. From its former peak of some 50,000 in 1929 Packard's production dropped to 8,018 in 1932, although this represented a high figure in the total number of cars in that price group.

Plans had been considered for some time for the production of a smaller car of lower price. The time and general conditions were seized upon as propitious for introduction of such a car. Finishing the development work and testing the car, together with rearranging the entire plant and designing, building and installing new machinery for its manufacture, represented a huge task.

Packard's foundry has been completely modernized with most up-to-date equipment and ventilation. The large addition in the foreground was added within the past two years.

The new car was given the characteristic Packard appearance and also the Packard name. It was called the Packard 120. Packard was fairly launched in its new program in 1935 and during that year total production of the company was 52,256. Another surprise move, all part of the original studied plan, came in 1936 with the introduction of the Packard Six.

This second new car, again a car bearing the Packard hall mark in radiator and hood design, was slightly smaller than the 120 and, as the name indicated, had a six cylinder engine. It, too, leaped into an immediate popularity. The Six helped carry Packard to another all time production record when total volume swelled to 80,699 cars in 1936.

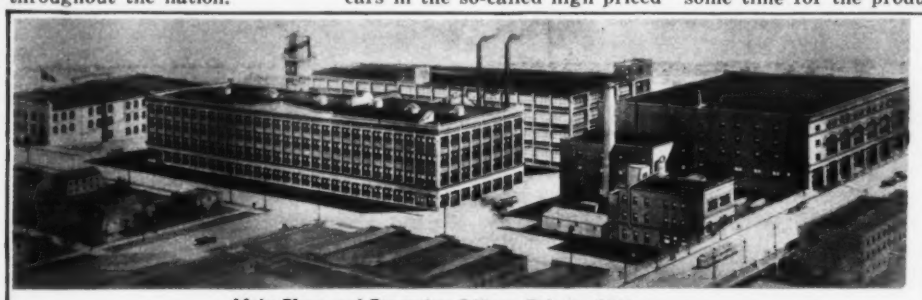


Specially trained men only are employed on the six and eight convertible models assembly.

With the Six added to the 120 Packard was placed in the position of covering the field from the so-called medium low priced group to the top priced cars. Refinement and improvement of the Packard Twelve and Super Eight had been going along hand in hand with the rapid fire developments taking place with the Six and 120. The greatly broadened distributor and dealer organization of the company aided greatly in increased sales of these two bigger, more costly lines of cars.

High point in Packard's tremendous program was reached in 1937. Production records for the entire history of the company fell almost daily before new high figures. The total production of all cars for the year, 1937, reached 109,518, or more than thirteen times that of 1932, and seventeen times the production of 1934.

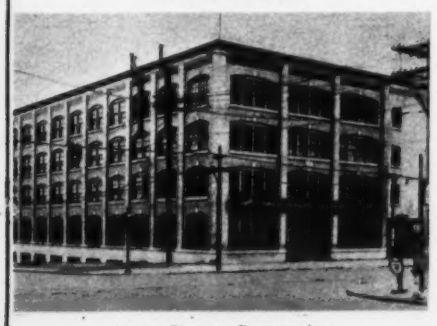
Successful as they had proved, both the Six and 120, or Packard Eight as it is also known, were almost completely redesigned for 1938. Both cars were made larger in wheelbase, inside body room, and luggage carrying space. They were given all steel bodies with single piece all steel tops.



Main Plant and Executive Offices, Toledo, Ohio

WITH THESE AND OTHER MANUFACTURING PLANTS PLUS A NATION-WIDE SYSTEM OF AUTO-LITE SERVICE STATIONS, ELECTRIC AUTO-LITE COMPANY SUPPLIES AND SERVICES MORE THAN 400 AUTOMOTIVE PARTS AND APPLIANCES

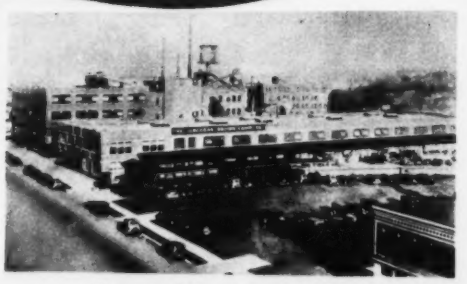
American Enameled Magnet Wire Co.
Port Huron, Michigan



Owen-Dyneto Corporation
Syracuse, New York

USL Battery Corp. of California
Oakland, California

Buckeye Bumper Division
Springfield, Ohio



Corcoran-Brown Lamp Division
Cincinnati, Ohio

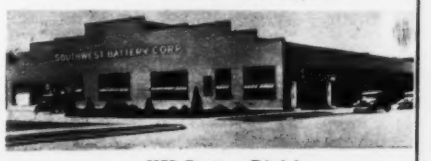
Alemite Die-Casting and Manufacturing Division
Woodstock, Illinois

Electric Auto-Lite Plant No. 15
Toledo, Ohio

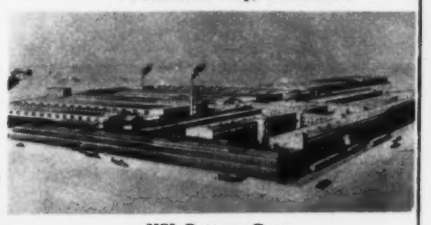
Moto Meter Gauge & Equipment Division
LaCrosse, Wisconsin

Foundry Division
Fostoria, Ohio

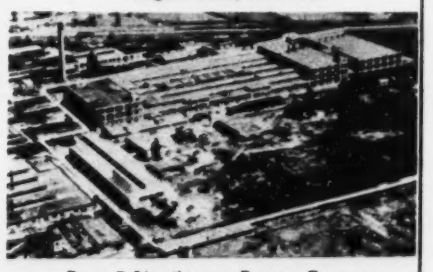
Electric Auto-Lite, Ltd.
Sarnia, Ont., Canada



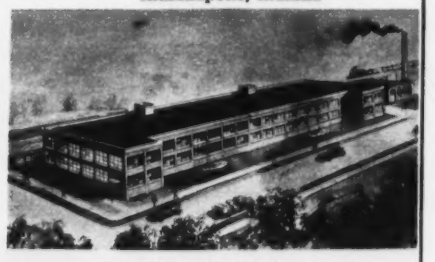
USL Battery Division
Oklahoma City, Oklahoma



USL Battery Corp.
Niagara Falls, New York



Prest-O-Lite Storage Battery Company
Indianapolis, Indiana



Prest-O-Lite Storage Battery Co.
Toronto, Canada

Bay Manufacturing Division
Bay City, Michigan

GM Plows Back Millions In Tomorrow's America

(Continued from page 38)

completing an entire new plant in 1937. A new plant has been added to the Inland Manufacturing division's properties for the manufacture of automotive clutches. Property was also acquired and additions built for the newly formed Delco Brake division in 1936, for the manufacture of hydraulic brake equipment.

The Inland division also began the construction of an eastern service plant for automotive and refrigeration rubber products at Clark, N. J., in the summer of 1937. This plant is now nearing completion, and is the sixth New Jersey plant of General Motors.

At Bloomfield, N. J., nearby, the Delco Remy division, in 1935, acquired industrial property to manufacture batteries for eastern and export markets, making the second General Motors plant in Bloomfield.

In Detroit, General Motors doubled the size of its Research Laboratories with construction started in 1936. The eight story addition now houses the important Styling Section and the Fisher Body engineering department.

Cadillac-LaSalle and the Fleetwood plant which supplies many of the bodies for this division also have undergone considerable expansion in Detroit to care for the growing demands for these cars.

General Motors turned toward the southwest late in 1936 to announce the purchase of a tract of ground near Phoenix, Ariz., where laboratories were constructed to carry on experimental work with cars under hot weather driving conditions.

Additions also have been made to the Proving Ground at Milford, Mich., the 1268 acre tract where every road condition is duplicated for final tests and checks on car performance.

At Saginaw, Mich., sizeable additions have been made to the Saginaw Malleable Iron Division and the Saginaw Steering Gear divisions to keep pace with demand.

At Syracuse, N. Y., General Motors, in January, 1936, announced that it was reopening the Brown-Lipe-Chapin plant, closed since 1932, for the manufacture of hub caps, bumper guards and headlamps. Operations since have been expanded, and employment has steadily increased.

In 1937, General Motors announced the construction of a new plant in Rochester, N. Y., for the manufacture of automotive accessories. This plant, now nearing completion, has a floor area of 400,000 square feet. It is situated on a tract of 66 acres.

In nearby Lockport, N. Y., a new plant for the Harrison Radiator division is also under construction. The Harrison division manufactures radiators, thermostats and car heaters.

At Warren, Ohio, an entire new plant of 120,000 square feet is now under construction for the Sunlight Electrical division. It will double the floor area of the present plant. The Packard Electric division, also at Warren, has built two large additions within the past three years, more than doubling its original floor space.

Other divisions which have enlarged their plant facilities and made notable plant improvements during the past five years include New Departure at Bristol and Meriden, Conn., the Hyatt Bearing division at Harrison, N. J., and the AC Spark Plug division at Flint.

In fact, every division of General Motors has contributed an important part to the industrial progress during this period, so that better products, better working conditions and more efficient manufacture at the lowest possible prices can be assured the public.

Nation Spurns Clothes to Ride

Washington.—Only for food do Americans spend more money in retail business establishments than for automotive products, according to the Commerce Department's marketing research division.

In a tabulation just made public the division estimates that in the last calendar year the total retail sales in the United States amounted to $39,930,000,000, the highest since 1929 and 5.2 per cent above 1936. Food stores took in $9,340,000,000 or 23 per cent, there being a 4 per cent increase over the previous year. In the automotive group sales reached a total of $5,910,000,000, or 15 per cent of total retail transactions and 3.5 per cent above 1936 sales. This in sales was the department store, dry goods and general merchandise, $4,107,000,000, or 10 per cent of the total and a 6 per cent increase for the year.

During last year motorists spent $2,478,000,000 in filling stations and a billion of this, it is estimated, for the support of the Federal and State governments. The total was 6 per cent of all retail expenditures and 9.5 per cent more than the amount spent for gasoline and other car necessities in 1936. How increasingly dependent upon motor vehicles, the public has become the total was 39 per cent higher than the big pre-depression year of 1929.

Car Makers Yield Last To Depression Layoffs

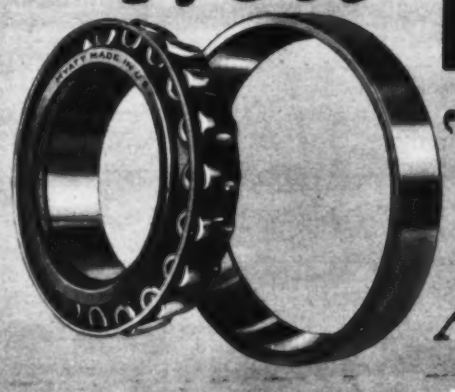
Washington.—In some quarters there have been persistent, unjustified attempts to stress employment decline in the automotive industry which official statistics of the Federal government do not support. The economic recession which hit the country last fall affected virtually all industries and latest figures of the Labor Department prove that in January of this year loss of employment in several other industries was more pronounced than in motor vehicle plants.

Declines in non-durable industries in January which exceed that of the automotive were: Men's furnishings, 18.7 per cent; cigars and cigarettes, 17.6 per cent; shirts and collars, 17.1 per cent, carpets and rugs, 15.6 per cent. The tire industry, so closely affiliated with the motor vehicle, showed a job decline of only 6.8 per cent.

Of 89 industries of all kinds surveyed in this compilation there were employment gains from December in only five. The average job decrease in 84 industries was 6.9 per cent. The average drop in payrolls was 12.1 per cent.

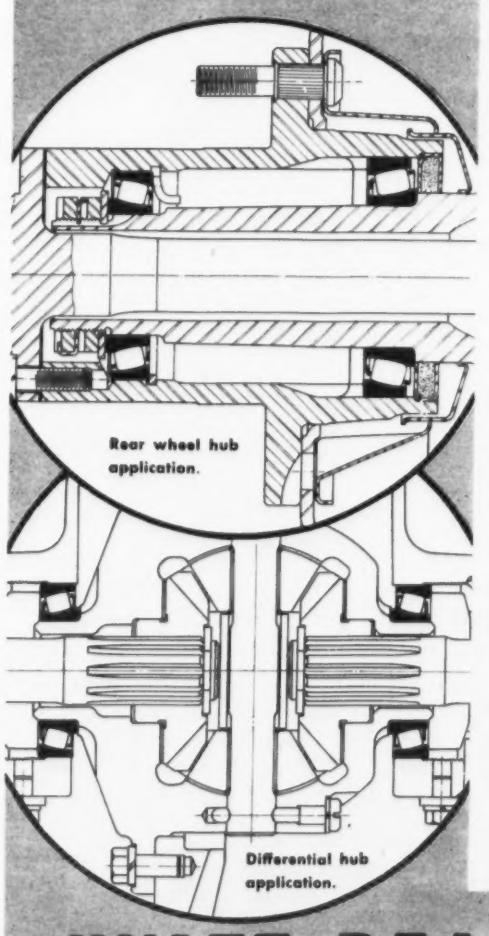
The automotive shows up favorably among all industries in the index numbers of employment and payrolls in manufacturing industries. For comparisons the Labor Department uses the three-year average 1923 to 1925 as 100. In January the automobile plant employment index was 97.2. The January index for all industries was 75.9, demonstrating the favorable comparison shown by automotive manufacturing.

THE New HYATT



"Spherangular" Bearing .. our contribution to Automotive Progress —

Hyatt "Spherangular" type roller bearing — separated to show construction.



Embodying a new functional principle this Hyatt "Spherangular" two part roller bearing is ideal for both radial and thrust loads. It is self-aligning and maintains an ideal load distribution even in a condition of misalignment. It is an extremely practical all-purpose bearing, simple in design and easy to install.

THE PRODUCTION of this type of bearing has made possible the employment of several hundred more persons. It required an investment of $2,500,000 for new tools and equipment.

CONFIDENCE in the future of the automotive industry was the driving force back of the creation of this new product. Confidence in its continued progress impels Hyatt engineers and craftsmen to continue their efforts to provide better bearings for the better cars and trucks the industry will build.

HYATT BEARINGS DIVISION
General Motors Corporation
Harrison, New Jersey — Detroit, Michigan

Ford Builds Today... for Tomorrow

(Continued from Page 36)

in four factories besides the Rouge Plant.

They are in: Dagenham, England; Windsor, Canada; Strassburg, France; Cologne, Germany.

They are assembled in 44 plants, 16 of which (including the Rouge, are in the United States. There are 4 in Canada, 8 in Europe, 1 in Mexico, 3 in South America, 1 in Japan, 4 in Australia, 4 in India and Ceylon, and 1 each in Malaya, New Zealand and South Africa.

Ford Plants in U. S.

(other than "The Rouge")

Location	Activity	Established	Remarks
Alexandria, Va.	Sales and Parts	1915	Originally at Washington, D. C. Moved 1932. Equipped to assemble.
Atlanta, Ga.	Sales and Parts	1909	
Buffalo, N. Y.	Assembly, Sales, Service	1915	
Chester, Pa.	Assembly, Sales, Service	1914	Originally in Philadelphia. Moved 1927.
Cincinnati, O.	Assembly, Sales, Service	1915	
Cleveland, O.	Sales and Parts	1911	
Dallas, Texas	Assembly, Sales, Service	1914	
Dearborn, Mich.	Assembly, Sales, Parts	1904	Originally in Detroit. Assembles at Rouge. New Plant, 1927.
Denver, Col.	Sales and Parts	1914	
Edgewater, N. J.	Assembly, Sales, Service	1911	Succeeded Long Island City and Kearney, N. J. Plants in 1930.
Hegewisch, Ill.	Assembly, Sales, Service	1913	Originally in Chicago. Moved 1924.
Houston, Texas	Sales and Parts	1915	
Jacksonville, Fla.	Sales and Parts	1924	
Kansas City, Mo.	Assembly, Sales, Service	1910	
Long Beach, Calif.	Assembly, Sales, Service	1930	
Louisville, Ky.	Assembly, Sales, Service	1925	
Memphis, Tenn.	Assembly, Sales, Service	1924	
Milwaukee, Wisc.	Sales and Parts	1914	
New Orleans, La.	Sales and Parts	1916	
Norfolk, Va.	Assembly, Sales, Service	1925	
Oklahoma City, Okla.	Sales and Parts	1916	
Omaha, Neb.	Sales and Parts	1916	
Pittsburgh, Pa.	Sales and Parts	1909	New Plant 1915. Originally in San Francisco.
Richmond, Calif.	Assembly, Sales, Service	1913	
Seattle, Wash.	Sales, and Parts	1932	
Somerville, Mass.	Assembly, Sales, Service	1914	Originally at Cambridge, Moved 1926.
Twin Cities, Minn.	Assembly, Sales, Service	1925	Equipped with power for manufacture.

Farm product purchases comprise another mammoth item in the annual Ford purchases, led by rubber with 189,800,000 pounds. Wood takes the runner-up position with 147,600,000 pounds, followed by 116,090,000 pounds of cotton.

To keep its plants clean and sanitary, Ford annually spends thousands of dollars on soda, soap, brooms, paint, etc. Caustic soda and soda ash comprise 3,450,000 pounds and 3,300,000 pounds respectively. Shop towels alone total 3,700,000 each year, while 238,000 gallons of paint are used.

Safety equipment is another item of considerable outlay, one of the items, felt refills for respirators, etc., alone totalling 723,000 pairs during a 12-month period. The company also buys more than 720,000 hand pads during a year, as well as 150,000 lens for workmen's goggles.

Aprons comprise another big item, more than 20,000 of these being purchased annually for the workmen. A total of 7,000 rubber boots are also bought yearly, as well as 2,400 special "No-Spark" shoes. Following is a complete breakdown of the Ford company's annual expenditures for materials, farm products, plant sanitation, and safety equipment:

Ford Buys Annually

Materials

In a 12-months' period the Ford Motor Company purchases the following materials:

Coal	N. T.	2,010,000
Iron Ore	G. T.	633,000
Limestone	G. T.	332,000
Sand	G. T.	386,000
Sulphuric Acid	lbs.	20,161,550
Corebinder	lbs.	9,764,817
Lead	lbs.	43,948,750
Tin	lbs.	2,433,840
Copper (brass and bronze)	lbs.	47,278,052
Aluminum	lbs.	33,513,600
Antimony	lbs.	1,912,500
Zinc (brass)	lbs.	7,822,431
Nickel	lbs.	601,000

Farm Products

Cotton	lbs.	116,090,000
Wool	lbs.	4,165,200
Wood	ft.	147,600,000
Wood (as paper board, etc.)	lbs.	6,800,000
Rubber	lbs.	189,800,000
Corn	bu.	586,950
Jute	lbs.	3,900,000
Pine pitch	lbs.	2,678,000
Mohair	lbs.	455,000
Sugar Cane	gals.	1,300,000
Cork	lbs.	325,000
Beeswax	lbs.	7,800
Castor Oil	lbs.	312,000

Plant Sanitation

Caustic soda	lbs.	3,450,000
Linseed soft soap	lbs.	1,060,375
Liquid soap	gals.	24,678
Soda ash	lbs.	3,300,000
Soda chips	lbs.	455,000
Soap powder	lbs.	135,000
Cleansing powder (18 cans per case)	cases	175
Cleansing cakes (18 cakes per case)	cases	250
Snow shovels		278
Scoop shovels		1,210
Paint brushes		56,913
Bench brushes		5,106
Sponges		20,520
Large chamois (90 sq. ft. doz.)		4,680
Mop heads		77,154
Mop pails		13,500
Brooms		33,524
Wipers, cotton (10 pcs. a lb.)		436,000
Wipers, hemmed		870,000
Shop towels		3,700,000
Putty knives		9,973
Ladders		800
Paint	gals.	238,000
Paper towels (3,750 a case)	cases	8,500

Safety Equipment

Foundry leggings and shoes	pairs	1,550
Lead proof respirators		3,600
Cartridges for above		8,400
Dust proof		5,688
Felt refills for above		723,600
Cloth facelets for above		60,300
Amber goggles		9,600
White goggles (clear)		108,000
Dust proof goggles		6,000
Welders goggles		4,800
Acid proof goggles		288
Replacement lens	amber	7,200
	clear	120,000
	dust pf.	14,400
	welders	12,000
Welders head and hand shields		432
Raincoats		4,800
Rain pants		1,728
Rain hats		3,600
Oilskin aprons		9,600
Canvas mitts		6,000
Rubber aprons		3,264
Leather aprons		2,892
Canvas aprons		864
Hand pads		720,000
Leather and asbestos pads		108,000
Wristlets and sleeves		2,400
Rubber boots		7,000
"No-spark" special shoes		2,400

(And very many others).

FACILITIES

Plus EXPERIENCE

SINCE 1902 this organization has been an important factor in the automotive industry. Our research, engineering and production facilities continue to contribute many great advancements in internal combustion engine design.

Continental's most recent development in engine design is Individual Porting. Continental Patented Individual Porting provides single cylinder fuel economy in multi-cylinder engines. Such uniform mixture delivery results in higher volumetric efficiency, more power and greatly improved economy. In addition to Individual Porting Continental engines incorporate many advanced engineering features including: (1) Pressure-lubricated self-locking tappets; (2) Full length water jackets; (3) Water between cylinders; (4) Directional cooling; (5) Counter-balanced crankshaft; (6) Ball-bearing water pump with carbon seal. Continental engines are available as standard power units for automotive, truck, bus, marine, aircraft, industrial, tractor, agricultural machinery and many other applications. Write for specification bulletins describing Continental's new M600 series of 6-cylinder engines.

CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD

Continental Motors Corporation

Factories: Detroit and Muskegon Offices: Detroit, Michigan

Oiling America's Progress

(Continued from Page 22)

leum laboratories all through the nation today are devoting their lives to the furtherance of the arts and sciences relative to petroleum. The industry spends more than $12,000,000 annually for research.

Today petroleum's 112,000 mile pipe line system and its fleet of tankers, comprising more than 25 per cent of America's merchant marine, keep transportation costs at a minimum. Both means of transportation were developed by the industry itself. Constant improvements are being made to improve operating efficiency. A feature in recent years has been the development of pipe line transportation for gasoline. It is estimated that more than 5,000 miles of gasoline lines are now in operation. The economy of pipe line transportation contributes to low prices for the consumer.

Hundreds of thousands of service stations beside the highways provide for motorists a service which, in completeness and efficiency, probably is unparalleled in the history of merchandising. Service station operators have come to be known as the "coast guards of the highway" because they have proved to be friends of the motorists both in need and indeed.

Petroleum and its products, and especially motor fuels and lubricants, are obtainable in those out of the way spots where not even postage stamps can be purchased. The average motorist does not once in his lifetime stop at a service station in vain for gasoline, oil, or service.

The petroleum industry's place in the national economy today differs from that of 75 years ago. Then a few hundred workers, mostly in one state, comprised the entire personnel. Now the number has grown to more than one million. They are to be found in every hamlet of every state and their aggregate annual pay envelope of more than $1,500,000,000 represents cash in the tills of thousands of merchants and small business men.

The petroleum industry's early equipment was home-made and crude. Today entire new industries have grown with needs for oil field, refinery and marketing equipment. Business amounting to $1,000,000,000 and more yearly is shared by scores of American industries which supply the petroleum industry with its needs, ranging from paper clips to tank ships.

Additional millions of dollars paid out annually by the petroleum industry in leases, rentals, royalties, and bonuses further enhance its value to the national economy. Farmers have come to know petroleum as another crop. In petroleum producing states these farmers receive an estimated $200,000,000 yearly in royalty, rental and bonus payments.

The 69½-foot hole in the ground which comprised the American petroleum industry on August 27, 1859, has developed into the most productive single source of tax revenue. Taxes on the operations and products of the petroleum industry have jumped from $130,000,000 in 1922 to more than $1,300,000,000 in 1937. That is a tenfold increase for the 15-year period. Petroleum taxes today account for nearly one-eighth of all taxes collected in the United States—federal, state and local.

Prominent in the picture is the gasoline tax. Producing less than $13,000,000 in 1922, its current annual yield is approaching the billion dollar mark. Originally levied at one cent per gallon to pay for highways, the present national average rate, including the duplicating one cent federal tax, is approximately 5½ cents. Gasoline taxes in some states are as high as 10 cents a gallon.

This tax now is, in effect, a sales tax of more than 35 per cent on the retail price. Thus there exists the peculiar paradox of industry reducing the price of a commodity by one-half, while government increases the cost of that same commodity by means of excessive taxation to the point where savings made possible by industry almost vanish.

Annual payroll disbursements by the industry would have increased by reason of its augmented man-power alone, but, government data reveal, the purchasing power of the industry's workers was greatly strengthened by increases in pay rates. Petroleum workers today earn more money per week than they did in the boom year of 1929, yet their work week has been shortened by as much as 13 hours.

Refinery workers earning an average of 97 cents per hour are the highest paid workers in all manufacturing industries. This rate compares with 64 cents per hour paid them in 1929 and 60 cents per hour in 1933. In 1929 they had to work a 49-hour week to earn $31. Today they put in 36 hours per week and earn $34. Similar improvement is common in the oil fields.

Increases in labor costs have not been reflected in higher prices to the consumer of petroleum products. In December 1937 the national average price of gasoline was 14.19 cents per gallon. By December, 1937, it had advanced 1.6 per cent to 14.41 cents. But during this same period the cost of other necessities, as revealed by the National Industrial Conference Board's index of the cost of living, rose 18.3 per cent. In other words, the cost of such items as food, clothing, housing, etc., rose at a rate more than 11 times as rapid as that of gasoline.

The petroleum industry creates values in the form of retail trade in its products amounting to nearly $5,000,000,000 annually; add to that its yearly wage disbursements of $1,500,000,000, the $1,000,000,000 paid to other industries for equipment and supplies, the $1,300,000,000 paid to government for taxes, and $200,000,000 of royalty, rental and bonus payments to farmers. Totaling these sums we find the industry's annual contribution to the national economy to be $9,000,000,000.

Seventy-five years ago the acorn from which this mighty industrial oak has grown was worth one-tenth of 1 per cent of this sum. Such a comparison perhaps is the best possible commentary on revolution—American style.

Acid Test FOR TRUCKS

104 International Trucks Prove Their Stamina
OFF THE HIGHWAY for Dowell, Incorporated

You get the real measure of a truck when it goes to work in the oil country.

Dowell, Incorporated, who make a business of treating oil wells with acid to increase production, are up against some of the toughest transportation problems in the world. Hard roads and oil wells seldom get very close together. The type of equipment used by Dowell in "acidizing" oil wells is big and heavy. This means cross country trucking from highways to oil rigs with little or no roadway under the wheels. Dowell's fleet of 104 Internationals, of all sizes, masters these jobs in important oil fields all over the North American Continent.

And just as Dowell's special treatment of acids and chemicals overcomes natural barriers INSIDE the earth, Dowell's great fleet of Internationals overcomes the natural barriers on top. This combination has treated some 11,000 wells in the last five years to produce a gain of over $50,000,000 in the oil industry.

And so it is everywhere—in every line of business, where hauling is a factor, International Trucks show the way to profitable operation. Try this quality product in your own business and see.

The complete new line of Internationals covers every trucking need from store delivery to oil well delivery. From Half-Ton to powerful Six-Wheelers, they are all new ALL-TRUCK trucks, engineered for brilliant performance and styled for brilliant appearance. See the New Internationals at any International dealer or branch showroom. Then put the one you need up against your own toughest test and *watch it work!*

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue (INCORPORATED) Chicago, Illinois

Dowell fleets, varying in size and equipment according to the territory served, include pumper, winch, and tank-equipped heavy-duty trucks; four-wheel trailer tanks; big six-wheel tank-equipped transport trucks; and pick-up trucks.

INTERNATIONAL TRUCKS

Armco Says It In Steel

(Continued from Page 21)

cause it was a mechanical method of doing what formerly had to be done all by hand, and was capable of producing in greater volume, hence reduced the unit production costs.

By way of illustration, the price of a fender item in sheet steel in 1926 was $106 a ton, while the price for the same part in the first quarter of 1937 was $68 a ton.

While much of the credit must be given to processing improvements which followed, it is agreed by automobile men and steel men as well that the mechanical kneading of the metal in the continuous process gives it more "stuff" than was ever possible on the old hand mills.

Without the deep-drawing qualities of the metal now produced on the continuous mills the rakish-cupped fenders, one-piece tops, and other intricate formed parts of the modern car would not be practical.

LIVE STOCK FARMERS LEAD IN AUTOMOBILE AND TRUCK OWNERSHIP . . . . . and in FARM INCOME

The Corn Belt Farm Dailies

Chicago Daily Drovers Journal
Omaha Daily Journal-Stockman
Kansas City Daily Drovers Telegram
St. Louis Daily Live Stock Reporter

THE • PUBLICATIONS • OF • THE • LIVE • STOCK • INDUSTRY

Hyatt Creates New Jobs

HYATT Bearings Division of the General Motors Corporation, Harrison, New Jersey, recently introduced through its motor sales and engineering offices in Detroit a new barrel roller type bearing for automotive use under the trade name "Spherangular". The term "Spherangular" is derived from the *spherical* contour of the race surfaces and the *angular* contact of the rollers.

This bearing is made up of a separable outer race and an inner race and roller assembly. It is freely self-aligning, the barrel-shaped rollers operating between spherically curved raceways. The construction is such that ideal load distribution is obtained even in conditions of extreme misalignment.

Constant improvement of products brings new demand and new jobs. Above is the new Hyatt spherangular bearing just introduced.

Although not yet generally available to the industry this bearing, so ideally suited for differential and wheel application, already has a record of successful performance in leading makes of cars and trucks. Approximately 7,500,000 of these bearings have already been produced, providing employment for an additional force of several hundred persons and requiring a capital investment of $2,500,000 for new tools and equipment.

Willys Continues Upward Climb

(Continued from Page 16)

since November 1936, when the first showing of the new Willys models was made at the New York Automobile Show, has been a stirring revelation of the manner in which the automobile industry has developed to first place among the nation's industries.

The orignnal plans of the company were to build a car for mass distribution that would offer low first cost and subsequent low operating costs. It was planned to use one chassis and the initial production included only a sedan model in standard and de-luxe types.

This limited line of bodies was continued until early in the summer of 1937, at which time a coupe was introduced, also in standard and deluxe body types, and a custom sedan was added to the five-passenger models.

In the period from November 1936 until mid-summer of 1937, the distributor dealer organization of the company was increased from four distributors and a small number of dealers to a complete distributor organization covering the entire country with large dealer organizations under each distributorship.

Diesel Progress

Twenty-two of the nation's principal railroads now use General Motor diesel locomotives. It is possible to travel from the Atlantic to the Pacific coast in 56 hours on trains powered by these power plants.

Evans Puts Faith In Diversity

EVANS PRODUCTS CO.'S success is founded primarily upon the recognition of a need for a certain product, then developing such product for a ready market. This policy is responsible for the wide diversification of the company's products.

It was in 1915 that Edward S. Evans' attention was directed to a set of wood shipping blocks used in the freight transportation of automobiles.

Up to the time these loading blocks were perfected the railroads were compelled to pay an average of $5 per car damage in claims for every automobile shipped in the United States. By 1917 these claims had been reduced to 50 cents for each automobile shipped — an estimated saving of $13,500,000 a year in damage claims alone. Reduced loading costs saved the automobile manufacturers about $4 per car, or $12,000,000 a year.

The Evans Auto-Loader, a permanent metal device was introduced in 1932. To date it has been installed in more than 30,000 automobile freight cars as permanent equipment representing an investment of more than $10,000,000. It is estimated that since 1915 Evans auto loading equipment has saved the railroads $150,000,000 and automobile manufacturers $160,000,000.

Successively the company went into the manufacture of woodtile flooring and battery separators.

Other Evans products include the Auto Stop, a grade-crossing safety barrier; Evans car ventilators; Evanair-Conditioner for automobiles, trucks and buses; Evans Auto Railer adaptable to rail and highway service and the Evans remote control gear shift now used on three makes of cars.

NO RETREAT

No one can ever accuse the American automotive industry of "hoarding the blue chips". Indeed—no greater proof of its capacity for aggressive action, no more convincing evidence of its importance as a deep moving force in the nation's welfare will ever be written than the story of its magnificent attack upon the forces of depression six short years ago.

Motor Wheel Corporation, as a partner to the industry, is proud to have kept faith with this indomitable spirit through a vast expansion program which had its beginnings in the very depths of the depression—a program which has resulted in the spending of millions of dollars in new buildings and equipment, in product expansion and diversification, in the creation of new jobs and the betterment of income for thousands of workers.

Since 1932, more than two million dollars have been spent in buildings, equipment and development of the Centrifuse brake drum alone. Last year, in the face of a staggering taxation burden, Motor Wheel's capital expenditures reached nearly a million and a quarter dollars.

Diversification and aggressiveness have made the Corporation the largest manufacturer of fuel oil appliances in the industry. With the virtual obsolescence of wood wheels, its huge plant at Memphis, Tennessee, has been converted into a cooperage plant and is today the largest producer of white oak barrels in the world. And Motor Wheel has achieved a leading role in the manufacture and improvement of wheels for modern industrial and farm machinery.

Motor Wheel and the automotive industry will never retreat. But left unshackled and unfettered, the industry will go forward faster and will contribute in a far greater measure to our national prosperity.

MOTOR WHEEL CORPORATION

LANSING, MICHIGAN

On Your Mind . . .

● In addition to nationally advertised Dole Theromstats for use with hot water heaters, and factory installed motor-block thermostats, this company has pioneered in the development of temperature responsive units for many other products. This branch of engineering is comparatively new. Dole has been a factor in it from the start, nnd now stands as one of the leading sources for Thermostatic Bi-Metal. Whatever assistance you need with such problems, write for Dole's engineering cooperation.

THE DOLE VALVE COMPANY
1901-1941 Carroll Ave., Chicago, Ill.
Detroit Office: 2-137 General Motors Bldg.

DOLE

Thermostats
AND THERMOSTATIC BI-METALS

Studebaker Spends $9,000,000

New Equipment, Machines and Sales Promotional Efforts Accounted for Majority of Outlay. Spending on 1938 Models Alone Reached $3,000,000. Open New Assembly Plant on West Coast

SINCE 1932, the Studebaker Corp., South Bend, Ind., has invested more than $9,000,000 in a modernization and equipment program . . . it has established a body and assembly plant at Los Angeles . . . enlarged its parts and accessories distributing outlets . . . invested money in special programs, exposition exhibits, and in a history-making dealer "home coming" that marked the introduction of the 1938 Studebaker line last fall.

Since the reorganization in 1935, Studebaker has adopted a manufacturing philosophy in keeping with the nature of the operation, and, guided by R. A. Vail, vice-president in charge of manufacturing, has directed its energies to a simplification of methods and procedures geared directly to sales.

In 1937, for example, when Studebaker completely redesigned its product, later to have it acclaimed, "The best designed 1938 car in America," by The Magazine of Art, authoritative journal for artists and art critics, the objective in adding equipment in the machine shops was primarily that of providing increased capacity rather than emphasizing specialized machinery such as would be required for great volume production.

This program, for the 1938 car alone, cost an estimated $3,500,000 of which $1,000,000 represented an investment in new machinery and foundry mechanization; another million for new body dies.

Automatic Cylinder honing is now on a production basis.

Studebaker's manufacturing policy is one of balancing machine shop capacity with that of other major departments which are capable of turning out 60 units per hour. Consequently, most of the money is being spent on the motor machine shop and is being installed in a line paralleling the present lines. Most of the new machines are required for the cylinder block, crankshaft, and connecting rods. While the changeover is being made, certain operations are being brought in line with the latest practice and both lines of equipment have been completely conveyorized by the installation of a system of gravity roller conveyors.

Coincident with the changes in the machine shop, all major departments have been revamped and cleared for action. Final assembly lines are completely overhauled.

Important changes have been made in the foundry. Most noteworthy of these is the installation of a Carl-Mayer core oven, replacing the time-honored vertical baking ovens; an entirely new sand handling system; new molding machines and two merry-go-round floor conveyors for facilitating the molding of a variety of small parts. Here, too, will be found one of the new four-station Pangborn shot-blasting machines for cleaning cylinder blocks and a Wheelabrator for

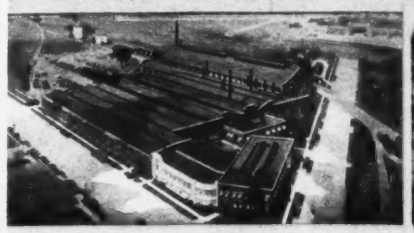
(Continued on Page 46)

Assembly lines (above) were over-hauled. New coast plant (right).

Bumper Plant—Jackson, Mich.

Wilcox-Rich Valve Plant—Battle Creek, Mich.

Stamping Plant—Massillon, Ohio



Leaf and Coil Spring Plant—Detroit, Mich.

General Offices and Axle Plant—Cleveland, Ohio

Spring Washer Plant—Massillon, Ohio

Eaton's eleven modern plants, located in eight cities, provide employment to many thousands, produce parts for every make of car and truck built in America.

WITH ITS ROOTS intertwined with the daily life of every community, with its great limbs spreading to shelter more than a tenth of the gainfully employed, the Automotive Industry is a living monument to American inventiveness, courage and high endeavor.

During the past lean years Eaton has followed the inspiring leadership of the industry it serves by energetically pursuing a policy of liberal expenditure for building improvements and expansion, for modernization of machinery and equipment, for research and experiment—with an eye toward doing its share to create employment and bolster purchasing power.

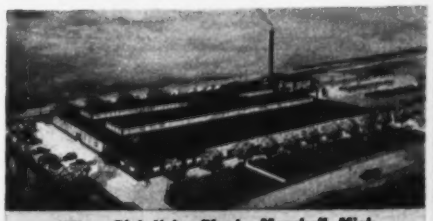
EATON

EATON MANUFACTURING COMPANY

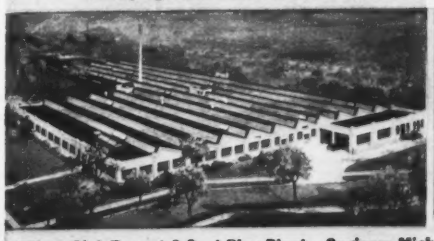
CLEVELAND, OHIO

VALVES • LEAF AND COIL SPRINGS • HEATERS
BUMPERS • AXLES • TAPPETS • SPRING WASHERS
STAMPINGS • GREY IRON CASTINGS • SEAT RINGS

Stamping Plant—Cleveland, Ohio



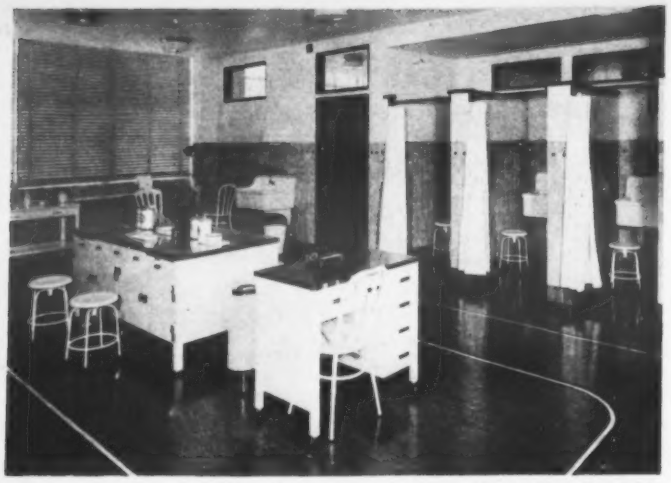
Wilcox-Rich Valve Plant—Marshall, Mich.



Wilcox-Rich Tappet & Seat Ring Plant—Saginaw, Mich.

Iron Foundry—Vassar, Mich.

Heater Plant—Cleveland, Ohio



Hospitalization for injured workers at most plants has reached perfection that rivals our best institutions. The above first aid room at AC Spark Plug Co., Flint, Mich., is only part of a two-story structure replete with most modern equipment.

Studebaker Spends $9,000,000

(Continued from Page 45)

tumbling small castings. Both of the latter items produce superior work and at the same time provide worker comfort with complete freedom from occupational hazards usually associated with such foundry operations.

Prominent among the new mechanization are examples of surface broaching comprising a number of operations in connecting rods and bearing caps. Precision boring machines, a new Hutto hydraulis honing attachment for finish-honing, Michigan gear shavers and interesting machines supplied by Ingersoll, Baker, Greenee, Sundstrand and others.

In 1935 an assembly plant in Los Angeles, California, was established. A body plant was added to the Los Angeles branch in 1936, providing a total of 242,000 square feet of manufacturing floor space on the west coast.

Parts merchandising has been given considerable attention in recent years to the extent of doubling the number of parts depots throughout the United States. The total now is sixteen. In some areas, parts depots have been relocated, as typified in the case of Metropolitan New York, where the parts depot is moved to a location providing better service to retail automotive trade.

Funds have been invested in educational work among Studebaker dealers, salesmen and service men to enable them to adequately merchandise and sell parts, accessories and used cars.

In the Fall of 1937, Studebaker held a series of two-day dealer meetings which were attended by more than 6500 Studebaker dealers and their salesmen from all parts of the United States and Canada. The sessions were acclaimed to be the most successful New Model Introductory Show in the history of the automobile industry.

Dealers saw the newly created line of Studebaker cars—attended a demonstration of engineering tests at the Studebaker 800-acre proving ground, witnessed a spectacular stage and motion picture production, "The Studebaker Cavalcade," which traced the history of the famous Studebaker name from 1830 down to the year of 1938—conferred with corporation officials—toured the factory from foundry to final assembly line—attended service school classes—and drove home to their respective communities in new 1938 Studebakers.

Thus, in two weeks, the entire continent was flooded with new Studebaker cars and in display in dealers' showrooms ready for public presentation on the official announcement date.

When Studebaker dealers convened in South Bend, they established some record breaking statistics. The transportation problem was acute." Six thousand five hundred men were met at twenty-six special trains. Over 7,000 pieces of baggage had to be checked and transported: 6,500 dealers and salesmen had to be driven to and from the Studebaker proving grounds.

After witnessing the musical production, "The Studebaker Cavalcade," they were again transported from the theater to the Studebaker Administration Building.

Approximately 1,200 dealers were taken forty-five miles out of town to St. Joseph and Grand Beach, Michigan, because South Bend hotels were filled to overflowing.

The transportation problem and the fact that 6,500 cars were driven more than a million miles over highways to all parts of the country without a single accident, was one of the outstanding accomplishments of the Studebaker home coming.

The automobile industry, fundamentally, is not 'big business.' It is comprised of 46,000 small businesses, such as the dealership above, the great majority of which are independently owned and operated.

Federal Expands Truck Line

WITH the first quarter of 1938 now behind, and confident that the automotive industry is showing signs of a definite upswing, the Federal Motor Truck Co. is pushing forward its expansion program started at the beginning of the year. Advances are being made in several directions simultaneously.

Since the announcement of the new 1938 Federal line, 14 new models have been added. These include six-wheel trucks in cab-over-engine and conventional types and bring the total number of models in the Federal line to 43, with capacities ranging from ¾-ton to 8 tons.

The new line introduced last fall is distinguished for its beauty of appearance with particular emphasis on the front end created by the eminent industrial designer Henry Dreyfuss. Substantial investments in tools and dies necessary to the manufacture of these trucks have been made in recent months.

Correlating its selling activity with the expanded manufacturing program, Federal has augmented its sales force both at the home office and in the field. An aggressive program to strengthen the dealer organization has resulted in the addition of more new dealers so far in 1938 than any similar period in Federal's 27-year history.

The company has been rapidly gathering momentum to take advantage of the big anticipated volume of truck business in the spring and summer months. This anticipation is based on a study of the industries where trucks are used heavily. With the construction industry already 21 per cent ahead of 1937, and building, wholesale food, petroleum, highway transportation, and other industries beginning to show marked improvement, Federal expects to do a substantial business in these fields during 1938.

The rate increase recently granted to truckers justifies the belief that this group will enjoy greater purchasing power and be in the market for new equipment in the near future.

Resco Electric Steels

COLD DRAWN BARS
COLD ROLLED STRIP

☆

Our Electric Furnace Department is in continuous operation due to the demand for RESCO Cold Drawn Bars in all carbon analyses including our speciality... Free Cutting Screw Stock.

Cold Drawn Carbon Bars • RESCO Free Cutting Screw Stock • Cold Drawn Alloy Bars • Hot Rolled Carbon Bars • Hot Rolled Alloy Bars
Cold Rolled Strip Steel

☆

ROTARY ELECTRIC STEEL COMPANY
DETROIT

District Offices:

INDIANAPOLIS CLEVELAND CHICAGO ST. LOUIS

OUR CONFIDENCE

in the Automotive Industry and America

Is shown by our million dollar plants expansion during 1937.

★

A complete new Spring Plant at Passaic, New Jersey — America's most modern molded plastics plant at Cambridge, Ohio.

★

These added facilities continue to hold Reynolds leadership in Automotive Spring and Molded Plastics Production.

Reynolds Spring Company

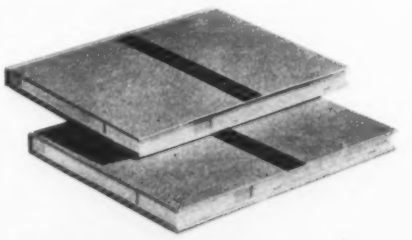
ESTABLISHED 1899

Jackson, Michigan

PASSAIC, NEW JERSEY — CAMBRIDGE, OHIO

ROUTE 1 FOR AUTOMOBILE ADVERTISERS

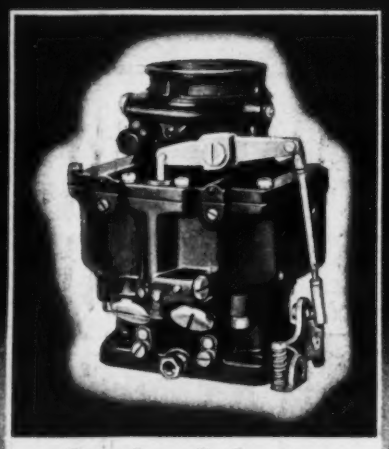
ROUTE 1 is the *Columbia Broadcasting System:* the world's largest radio network. It's a very familiar road to automobile men, having carried more of their advertising, in the last four years, than any other network. Just off the press, is a careful 500-page map-study of **ROUTE 1**: the primary listening areas of the Columbia Network. The study includes the 4TH SERIES OF CBS LISTENING AREA MAPS, and the 1ST STUDY OF CBS ZONES OF DEALER INFLUENCE. One measures the minimum areas where *consumers* listen to every CBS station—separately for day and night; the other, where *dealers* are reached by every CBS station, day and evening. To automotive executives, these studies reveal why the industry invested 26.6% more of its advertising dollars in Columbia for the first quarter of 1938—after a record-breaking 1937. Write CBS, New York, for maps of **ROUTE 1.**



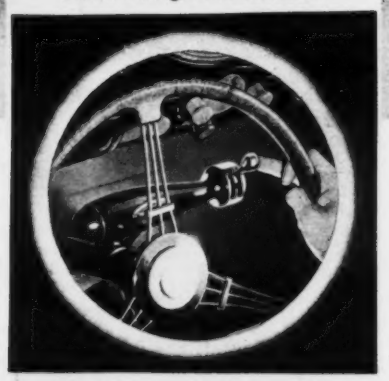
THE COLUMBIA BROADCASTING SYSTEM

Multiplying the Rabbits

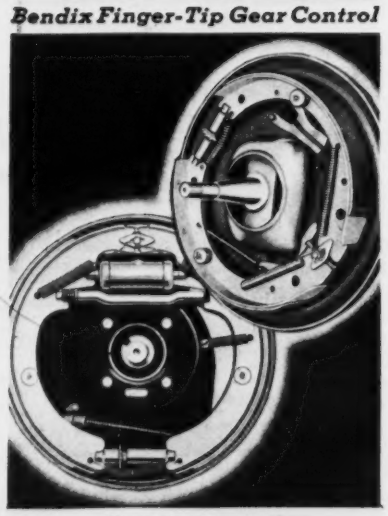
doesn't necessarily



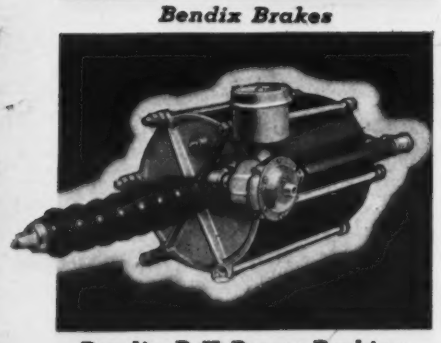
Stromberg Carburetors



Bendix Finger-Tip Gear Control



Bendix Brakes



Bendix B-K Power Braking

Multiply the Sales!

THE kind of automotive "rabbits" we're talking about are cute tricks too, and we're all for them. When folks are in the spending mood, they go for gadgets on and in their automobiles, without a doubt.

But gentlemen! You who design, and build, and sell the world its motor cars, as well as we who have the honor of serving you, know that 1938 sales are going to be fought for on a value basis, purely.

And how does a man or woman on the buying end judge value? On the basis of *known, recognized, trusted* features of the merchandise.

It's not simply selfish interest, but honest concern for the welfare of our whole automotive industry, that prompts Bendix again to urge:

"Focus on fundamentals in the sales features of your new cars which are on the boards now. Give them the very best braking systems, the most efficient and economical carburetion, the surest and soundest and simplest gear-shifting. If your judgment and experience tell you Bendix builds all this, then specify these Bendix Products."

You'll find that Bendix Products, quality considered, cost you less—and that Bendix men are as keenly alive to your interests as to their own—because they know the two are inseparable.

Call

BENDIX PRODUCTS CORPORATION

(Subsidiary of Bendix Aviation Corporation)

401 Bendix Drive, South Bend, Indiana

BENDIX